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# Iowa agricultural educators' current grading practices and perceptions of standards-based grading

Jenny Ann Lichty
*Iowa State University*

# Iowa agricultural educators' current grading practices and perceptions of standards-based grading

by

**Jenny Ann Lichty**

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Program of Study Committee:
Michael Retallick, Major Professor
Patricia Carlson
W.Wade Miller

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## ABSTRACT

Research on grading reveals that grading practices have not changed much since they were first introduced. However, educators are now learning about a newer grading approach that evaluates student performance based on clearly defined learning standards. Standards-based grading (SBG) looks to more accurately communicate student knowledge by assessing and reporting each student's mastery based on clearly defined learning standards. While still rather new, research on standards-based grading is limited and very little has been conducted at the secondary level. Even less research has been conducted on SBG and grading practices of career and technical education teachers.

The purpose of this study was to determine the perceptions of high school agricultural educators in Iowa regarding current grading practices and standards-based grading. The accessible population consisted of 225 high school agricultural educators. Findings were based on responses of 157 (69.8%) participants through an online questionnaire.

Results of this study indicated that secondary agricultural educators use a variety of learning approaches and assessment techniques. Results also indicated that agricultural educators align their beliefs with their grading practices. Professional development opportunities were another objective of the study with results showing an inconsistency of topics discussed within school professional development. Results revealed that agricultural educators are unfamiliar with SBG and need more information in order to fully implement within their programs.

The findings within this study serve as a starting point and a building block to help agricultural education develop grades that will accurately portray a student's knowledge.

This study can also benefit administrators when designing professional development opportunities that provide beneficial learning opportunities on grading and assessment.

# CHAPTER 1. INTRODUCTION

Educational practices have taken many different paths with the goal of preparing students for their future. It seems that each day there is a new push in education; recent examples include making classrooms more student-centered, incorporating 21st century skills, or designing differentiated classes. Teachers are asked to be flexible and to incorporate more into their classroom, all to help prepare students for their futures. From legislation to educational themes and teaching strategies to grading practices, education has been influenced and molded into the system it is today.

From its initial use in one-room schoolhouse and single classrooms, grading has been a regular practice for educators. Education advanced to grouping students by age into grade levels, and grading was still a description of the student's strengths and areas of weakness and how to improve (Guskey, 2013). At the beginning of the 20$^{th}$ century, a shift occurred which changed grades from narrative to a percentage. This shift evolved as the US Army developed the Alpha Test during World War I (Marzano, 2000). The Alpha Test was a multiple-choice test that helped place recruits based on their overall percentage score of correct questions (Marzano, Pickering, & Pollock, 2001).

Throughout this time, the purpose of grades remained the same: to provide feedback about student learning. When done appropriately, grades enable teachers to evaluate what students know and determine preparedness as well as communicate a clear picture of the student's knowledge of course content to parents and students (Randall & Engelhard, 2010). Grades should be a clear indicator of student knowledge, but grades today include a variety of scores from exams, homework, daily work, effort, behavior, and attendance (Urich, 2012).

Grades may be used to determine class rank and academic honors in addition to college admission and scholarships (Reeves, 2011). But when determining a school's success on educating students, grades authenticity present limitations (Urich, 2012). Teachers add up points from various activities, assignments, and behaviors, average them and assign a letter grade (Marzano & Heflebower, 2011). Variances across teachers, schools, and districts present grades that dilute what a student actually knows (Fisher, Frey, & Pumpian, 2011).

Grades not only are supposed to be a tool to identify what a student knows but they are used to hold schools accountable (Urich, 2012). In 1965, the Elementary and Secondary Education Act was first implemented to make making education accessible to all (Association for Educational Communications and Technology, 2001). The act has been revised and molded several times. Its most recent revision is known as the No Child Left Behind (NCLB) Act, passed in 2002. This new legislation focuses on quality education with high standards and accountability of schools.

NCLB started a focus of 'teaching for the test' where an emphasis on school success is based on student achievement on standardized state exams (Guskey, 2003). Standardized exams determine whether or not a school makes adequate yearly progress toward student proficiency (Reeves, 2011). Educators believe the pressure of what has become a "high-stakes" assessment that their classroom instruction is geared toward passing the state assessments (Daggett, 2005).

NCLB not only placed more emphasis on state-wide standardized exams, but also on content standards within the classroom. These statements that describe what educators want students to learn and be able to do as a result of their school experiences were not a new

concept in education at the release of NCLB (Guskey, 2013). Math educators had already developed learning goals by 1989 (Guskey, 2005). Other educational organizations followed shortly thereafter.

The International Center for Leadership in Education identified the relationship between standards, curriculum, instruction, and assessment as a way to reinforce each other. Daggett (2005) believed education should prepare students for life, not just for a state exam. A new framework was developed as a tool that captured teacher imagination to design a classroom where students are presented with high rigor and relevant material. The Rigor and Relevance framework helped meet the needs of NCLB.

More recently a push toward core curriculum and 21st century skills made its way into classrooms. Passed in 2008 and the last to develop and pass state standards, Iowa unveiled the Iowa Core Curriculum which details core teacher and student competencies in the areas of math, science, and literacy along with life skills (Iowa Core, 2012). Common Core State Standards were added to the Iowa Core legislation in 2010. The Iowa Core provides academic expectations of all K-12 students in Iowa.

The Iowa Core doesn't outline specific competencies in agricultural education or other Career and Technical Education (CTE) service areas. Other legislation has been developed for these areas. Iowa Code requires all CTE programs to meet state minimum competencies (State of Iowa, 2013). In addition, CTE programs are required to report students' skill attainment as part of the Carl D. Perkins CTE Improvement Act of 2006 (State of Iowa, 2013). Replacing the Vocational Education Act of 1963, the Carl D. Perkins Vocational Education Act, first enacted in 1984, required vocational education programs to meet high standards (Public Law 98-524, 1984).

Agricultural education as part of CTE is not new to requiring and assessing high content standards. National agricultural education standards were released in 2009. The National Agriculture, Food, and Natural Resource standards were developed to "provide state agricultural education leaders and teachers with a forward-thinking guide for what students should know and be able to do through the study of agriculture" (National Council for Agricultural Education, 2009). These standards are a resource for state and local educators and advisory councils to help develop a quality agricultural education program.

With new standards and legislation in place, standards-based grading (SBG) makes its entrance into the education system. Schools have begun experimenting and implementing this criterion-referenced, evidenced-based classroom assessment and reporting approach. SBG attempts to provide a grading system that is accurate and fair with more focus on the performance of students and less focus on subjective factors such as behavior (Reeves, 2011; Wormeli, 2014). Agricultural education is familiar with new educational reforms including student-centered classrooms and technical skills; however, the ways in which agricultural educators assess affects the accuracy of grades.

## Statement of the Problem

Grading continues to be a discussion of educators and administrators. As educational reform continues and new standards are developed, little research has been conducted on grading in secondary agricultural education classes. More information about agricultural educators' current grading practices and understanding is needed including a focus on understanding teachers' perceptions of standards-based grading.

## Purpose and Objectives

The purpose of this study was to determine the perceptions of high school agricultural

educators in Iowa regarding current grading practices and standards-based grading. The objectives of this study were to:

1. Explore agricultural educators' current grading practices
2. Explain what agricultural educators know about SBG
3. Define the local driving force of the SBG movement
4. Determine agricultural educators' attitudes towards SBG
5. Identify current grades-based professional development activities and opportunities for future professional development activities.

## Significance of the Study

With new legislation, agricultural educators in Iowa are required to report technical skill attainment each year (Iowa Department of Education, 2013). While technical skills are determined at a local level, it has not been reported how technical skills are developed or their origin. To increase consistency, reliability, and validity of technical skills reporting and accuracy of what students know, this study can help determine the direction for future grading and assessment in agricultural education.

## Definition of Terms

The following terms were defined for use in this study:

**Assessment –** tools used to evaluate student proficiency levels; a planned activity that provide information about student's understanding and skill in a specific measurement topic (Marzano, 2006)

**Competency-Based Education** – education system that tracks student knowledge based on performance tasks through multiple contexts; students advance to next level based on mastery rather than age or classroom time (Townsley, 2013)

**Feedback –** meaningful communication provided to a student in regards to their individual performance (Urich, 2012); no evaluative component (Wormeli, 2006)

**Formative Assessment** – frequent and ongoing assessment; designed to provide direction for improvement and/or instruction; used to provide feedback on student learning; most often not graded (Wormeli, 2006; O'Connor, 2009)

**Grade** – a number or letter reported as a summary of student learning and knowledge (O'Connor, 2009)

**Standard** – statement that describes what and/or how well students are expected to understand and perform (O'Connor, 2009); standards may also be referred to as learning objectives

**Standards-based grading** – a grading system that measures student proficiency levels using well-defined course objectives or standards (Tomlinson & McTighe, 2006)

**Summative Assessment** – assessments designed to provide information about a student's learning at the end of an instruction period (O'Connor, 2009)

# CHAPTER 2. LITERATURE REVIEW

This chapter discusses the literature related to grading practices and presents a rationale for this study. This chapter can be divided into six sections: history of grading, grading in agricultural education and career and technical education (CTE), purpose of grading, grading approaches, and standards-based grading implementation.

The first part of this chapter looks at the history of grading. The various influences on grading practices and how grading came to include scales and letter grades is discussed. Following this section, a discussion of research on grading practices in agricultural education and CTE is presented. The next section defines the purpose of grading before research on grading approaches are presented. In this section, three different grading approaches are presented: traditional grading, competency-based education, and standards-based grading (SBG). Within the SBG section, various SBG practices are discussed. Finally, this chapter looks at two K-12 Iowa schools and their implementation of SBG.

## History of Grading

American education can be dated back to the mid-1600s when Massachusetts enacted the first education law requiring parents to make sure their children could read and understand the principles of religion and laws of the Commonwealth (Clare Boothe Luce Policy Institute, 2009). However, it took 200 years before education began to look similar to today's classroom. It wasn't until the late 1800s that students were grouped into grade levels according to their age (Guskey, 2013). Grading at the time was letter-less with teachers preparing a narrative report addressing the student's mastery of skills and those that needed more work (Guskey, 2013). The main purpose was to inform students of their skill mastery and to signify when they were ready to move to the next level (Guskey, 2013).

At the beginning of the 20th century, education became more of a priority after the passage of new education laws requiring children to attend schools. At this time, teachers began reporting grades as percentages and other similar markings to show achievement (Kirschenbaum, Simon, & Napier, 1971). It wasn't long before controversy was raised on grading reliability. In 1912, Daniel Starch and Edward Charles Elliott conducted a study of 147 English teachers. The study identified the variances among teachers' grading criteria. Changes were made and scales were adjusted to fewer and larger categories to increase consistency (Guskey, 2013). The same study was repeated by Hunter Brime in 2011 finding similar results as the 1912 study (Guskey, 2013).

The grading system continued to advance. During World War I, the US Army developed the Alpha Test, a multiple-choice test where answers could be marked as correct or incorrect (Marzano et al., 2001). This test allowed the Army to determine competencies of hundreds of thousands of recruits quickly to place them into positions. This test was a model for the development of the SATs in the 1940s and furthered the educational grading system (Marzano et al., 2001).

Educators continued to grade students into the mid-1900s using percentages. However, schools began using grades to group slower and brighter students into special classes to help meet student differences in ability and interest (Alpren, 1960). Discussion continued resulting in the suggestion that two grades be given to each student: one for his ability and a second comparing him with his age-mates (Doak, 1962).

The distribution of grades typically followed the bell-shaped normal probability curve through the 1900s. Educators would follow a norm-referenced grading standard by ranking students against their peers before assigning a percentage of top-ranked students the highest

grade and the lowest ranked students the lowest grade while a large majority sat in the middle of what created the bell-shaped curve (Guskey, 2001).

In 1983, grading and the American education system became a focus for the Reagan administration. In April, President Reagan presented *A Nation at Risk*, which called for reform of public education, claiming schools were straying from the purpose of public education. The National Commission on Excellence in Education found test scores declining, high teacher turnover, and diluted curriculums being taught in classrooms (Graham, 2013).

*A Nation at Risk* provided few suggestions to improve the education system (Graham, 2013), but it started the education reform movement. In 1989, the National Council of Teachers of Mathematics (NCTM) developed learning goals ultimately paving the way for other professional organizations to follow (Guskey, 2005). Linda Darling-Hammond used the standards developed by NCTM as an example to explain the standards being clear enough to help direct curriculum development but not as cumbersome to limit teacher inventiveness (Vogel, 2010). The teacher-led efforts of standards development appealed to many states. By 2005, Iowa was the only state not to have established standards for student learning (Guskey, 2005; Marzano, 2006).

While states were leading their efforts in standard development, the national government was working on a new legislation to update *A Nation at Risk*. The No Child Left Behind (NCLB) Act in 2002 outlined a system to evaluate schools. States were required as part of NCLB to report progress on ambitious school improvement goals (O'Shea, 2005). The progress made by NCLB has been overshadowed by frustrations with the legislation. Educators have voiced their complaints about NCLB ranging from "forcing schools to teach to the test and constraining curriculum to punishing schools for having students who are

English Language Learners, special education students, and student living in poverty" (Vogel, 2010, p. 8).

In addition to developing learning standards, a push for authentic learning and assessment were included in educational reform. Learning should be relevant to students and the real world while assessments should provide students with the opportunity to demonstrate what they know (O'Connor, 2009). Teachers are now being asked to develop teaching and learning strategies and assessment strategies that are authentic, and these strategies are considered just as important as developing a grading plan (Brookhart, 2011).

As many as 80 percent of schools require letter grades (Munk & Bursuck, 2004) with a majority utilizing a 100-point scale with 10-point intervals (Reeves, 2011). Today, the grading process has become a game rather than a reflection of learning (Erickson, 2011). When students are presented with extra credit opportunities, grades become inflated (Wormeli, 2006). Students begin looking at ways to improve their grade without meeting the original benchmarks (Wormeli, 2006).

## Grading in Agricultural Education and CTE

There is very little research available for grading in agricultural education or in the overarching career and technical education (CTE) area. Research and literature within CTE has focused on changes in NCLB requirements and Carl D. Perkins Act readministration. Furthermore, CTE has focused on making the adjustment of incorporating STEM and Core Curriculum into CTE curriculum adding more standards that CTE teachers should assess (Pearson, Young, & Richardson, 2013; Ulmer, Velez, Lambert, Thompson, & Burns, 2013; Wooten, Rayfield & Moore, 2013; Haynes, Robinson, Edwards, & Key, 2012; Hyslop, 2010).

Passed in 2002, NCLB looked to improve school accountability. Agricultural educators and other CTE teachers have been familiar with holding students accountable. "There has always been considerable emphasis on performance activities in instructing and assessing students in CTE" (Cutshall, 2001, p. 39). *Handbook on Agricultural Education in Public Schools* (2008) outlines a variety of authentic and traditional forms of assessment including record books, portfolios, self-reflections, debates, and presentations. Each assessment, graded with a rubric, becomes a reliable tool to measure student learning (Phipps, Osborne, Dyer, & Ball, 2008). CTE has been using authentic assessments for years while other teachers have more recently begun using them (Cutshall, 2001). In agricultural education and CTE, authentic assessment on practical application of academic knowledge comes naturally (Willhoft, 2013).

In 2006, the Perkins Act was reenacted and CTE instructors were asked to continue to increase accountability by developing a Program of Study (POS). The 2006 Act asked CTE teachers to collaborate between the secondary and post-secondary levels and choose content that aligns with CTE standards (Hyslop, 2012). In previous versions of the Perkins Act, CTE teachers had already developed programs to meet the high standards requirement passed in the initial Perkins Vocational Education Act of 1984 (Public Law 98-524). Putting student attainment on paper, the 2006 Act also required educators to report out "state-established, industry-validated career and technical skills" (Stone, 2009, p. 21). These technical skills can further be defined as objectives and competencies required by a specific occupation (Stone, 2009). Technical skill attainment assesses each CTE student's knowledge, skills, and abilities to succeed in an occupation (Stone, 2009).

In a span of six years, CTE saw two versions of the Perkins Act and a non-content specific NCLB act. With all the additional reporting of data, CTE teachers can use the data to improve their already effective hands-on, real-world learning strategies (Daggett, 2005). Gary Hoachlander (2000) suggests CTE teachers use the data to help clarify learning goals and help set performance targets. By looking at where students are performing, determining a proficient level, and coming up with a plan on how to get there, CTE programs can begin to use what is reported to reflect on their program for improvement (Hoachlander, 2000).

With Perkins Act requirements, CTE teachers including agricultural educators are familiar with high quality standards and assessing students on those standards. When Iowa Core Curriculum was introduced in 2008, CTE teachers could play a valuable role in helping other teachers incorporate some of common core curriculum requirements like developing activities to meeting standards with real-life application (Willhoft, 2013). However, Willhoft (2013) advises CTE teachers to stay on top of professional development and activities to understand how core curriculum can be connected to their CTE programs.

## Purpose of Grading

Many discussions stem from an unclear purpose of grades. Alpren (1960) noticed early that the grade rarely represents true student accomplishment in terms of academic standards. Many times grades may include exams, quizzes, presentations, projects, homework, attendance, portfolios, participation, attitude, effort, and progress made. Teachers rely on various combinations of these elements to construct an overall grade (Guskey, 2009). These combinations cause an unclear picture about student learning and fail to accurately communicate student achievement with parents (O'Connor, 2011).

The intent of grades is to describe the student's progress in class (Dockery, 1995). Brookhart (2011) states that grades are about what students learn, not earn. "As soon as grades are introduced in schools, teachers, parents, and students emphasize grades rather than learning" (O'Connor, 2009, p. 17). It is up to the schools and districts to evaluate their teachers, and administration to determine the purpose of grades (Marzano, 2000).

Wrinkle outlined four classifications of grades in 1947. Peter Airasian (1994) updated Wrinkle's list to five purposes of grades outlined by Marzano in 2000. They include:

-*Administrative purposes:* student placement, graduation requirements, college admission

-*Feedback:* student achievement, areas of improvement

-*Guidance:* provide direction for students, course suggestions, further education

-*Instruction planning:* offer direction for instruction using student strengths/weaknesses

-*Motivation:* grades can encourage students to try harder

Of those identified, feedback was identified as a primary purpose of grading. Studies by Austin and McCann (1992) and Marzano (2000) indicate educators and administrators believe feedback about student achievement is the primary purpose of grading. Communicating student achievement is the primary purpose of grades (O'Connor, 2009). "Parents rely primarily on teacher-assigned grades when ascertaining the achievement of their children" (Randall et al., 2010, p. 1372). Grades can be "clear communication vehicles, if there is a shared understanding of how they are determined and thus, what they mean" (O'Connor, 2009, p. 16).

The most logical reasons to grade students are those that help teachers teach and students learn. Purposes including documenting student and teacher progress, to provide feedback, and to inform instructional decisions accomplish this. Grades that have the purpose to motivate, punish, or sort dilutes grade accuracy, usefulness and manipulates students (Wormeli, 2006).

Motivation as a purpose of grading is one of the most controversial purposes. While motivation can be viewed as a purpose to grades, Guskey and Bailey (2001) report that a student isn't motivated by a D or 0 in the gradebook. Students distance themselves from learning and extra effort must be made by educators to bring the students back (Wormeli, 2006).

Grades also influence college admissions and future success. While many colleges and universities require achievement test scores and high school grade point average (GPA) as traditional admissions requirements (Mattern, Patterson, & Wyatt, 2014), studies contradict one another on the correlation of standardized admission exams such as the SAT or ACT and high school GPA. Studies completed by the United State Department of Education showed improvement in GPA between 1999 and 2000. However, The College Board and ACT conducted studies showing that while GPAs were higher, standardized tests scores were lower than in previous years (Taylor, 2007). In a research study, student SAT scores and GPAs in a Georgia high school were analyzed. The findings showed a significant relationship between composite SAT scores and cumulative GPAs (Taylor, 2007).

Assigning a letter or grade to student achievement has been the traditional grading system used, but what that grade means is questionable. The valuable information is the details of the achievement on each learning goal, not the overall score (O'Connor, 2009).

## Grading Approaches

Grading in today's schools varies between classroom and school district (Fisher et al., 2011). "There is a growing emphasis in education on student-performance and performance-based forms of assessment" (Guskey, 1996, p. 1). Grading approaches today are classified using a norm-referenced system or criterion-referenced grading. In a norm-referenced system, educators 'rank' students or determine a student's grade by comparing their performance to the student's peers (Guskey, 1996). Criterion-referenced grading takes into account a student's performance based on established criteria or performance standards (Guskey, 1996). An educator may use one or a combination of these systems in their classroom. This section looks at three different grading approaches: traditional grading, competency-based education, and standards-based grading.

### Traditional Grading

Percentage grades are the foundation of many state grading policies (Guskey, 2013; Reeves, 2011), and 80 percent of schools require a single letter grade (Munk et al., 2004). Letter grades are familiar to nearly every person who has attended school (Guskey, 1996). The focus of traditional grading systems has been to sort and select students and justify grades (O'Connor, 2009).

A traditional grading system usually involves averaging of grades for a final single percentage or letter grade. A grade in a traditional system may include exams and quizzes, homework assignments, participation, and extra credit. The final grade becomes a

hodgepodge and is dependent upon the teacher's grading system and chosen elements of evidence (Urich, 2012). One grade sums up achievement that often includes effort and behavior (Brookhart, 2011; Marzano et al., 2011). The percentage that each element contributes to a student's grade varies across teachers, schools, districts, and states (Fisher et al., 2011). Teachers are allowed to design their own assessments and assign points to items awarding different total scores from teacher to teacher because teachers weigh items differently (Marzano, 2002).

The traditional grading system brings forth discussion on validity, reliability, and limitations. The validity of student grades is unknown due to the variability in criteria used to grade students from teacher to teacher (Allen, 2005). In a study of 342 educators, Randall and Engelhard (2010) found that when grading a student with average ability, low levels of effort and low achievement the student will still receive a passing grade as long as s/he has average or excellent behavior.

Grades then create a limitation for planning academic and futures of students (Allen, 2005). The traditional grading system also presents limitations regarding authentically representing what students know and are able to do (Wrinkle, 1947; Urich, 2012). "A mark, unless its meaning is restricted to one defined value, cannot be interpreted since it is usually a composite index representing the average of a variety of different values" (Wrinkle, 1947, p. 33).

**Competency-Based Education**

Competency is an indicator of successful performance in life-role activities (Spady, 1977). Competency-based education (CBE) transforms the traditional system (Cornally, 2013). In CBE, students' knowledge is tracked based on performance tasks and grades are

eliminated (Cornally, 2013; Townsley, 2013). CBE takes learning a step further because students are not just asked to gain knowledge and understanding but analyze, evaluate, and create (Iowa Department of Education, 2013).

Learning is the responsibility of the student in CBE. Students take ownership of learning while teachers provide support (Townsley, 2013). This eliminates any teacher-developed lesson plans as learning takes place both in and outside of the classroom (Cornally, 2013). CBE environments connect learning to student passions and interests allowing higher thinking and deeper learning (Iowa Department of Education, 2013). Through CBE, students are more connected and learn more on their own time about their own passions than they do in schools (Iowa Department of Education, 2013).

A clear set of pre-determined competencies are presented in CBE. Learning outcomes or competencies are explicity stated, agreed upon, and are known beforehand (Spady, 1977). Students move from one level to the next based on their mastery of a competency without regard to seat time, contact days or hours (Townsley, 2013). Student records reflect dates and projects for each proficiency reached (Cornally, 2013). Students are assessed on skills through multiple contexts and in multiple ways (Townsley, 2013). Assessment comes from a data-based, adaptive, and performance-oriented set of integrated processes that facilitate, measure, record, and certify within the context of flexible time parameters the demonstration of competencies (Spady, 1977).

**Standards-Based Grading**

While grades should be concise and informative, a single letter grade or a percentage score, such as that in traditional grading, is not a good way to report student achievement (Marzano et al., 2001). Today's report card looks similar to ones used a century ago with

one letter grade being reported for each course enrolled (Guskey, 2013). In a standards-based grading (SBG) system, a single grade per learning goal or standard is presented for each student with no overall grade (O'Connor, 2009; Townsley, 2013).

SBG is a newer approach to how educators assess and evaluate what they want students to know. This educational reform is based on student achievement of learning goals and performance standards (Townsley, 2013). SBG places more emphasis on learning content rather than points while rewarding the work done to gain proficiency (Cornally, 2013).

Students work more effectively if they have purposes in which they have a real interest (Wrinkle, 1947). With SBG, educators clearly articulate the purpose of learning and clear standards with students (Vogel, 2010). Educators can continue to create instruction and curriculum using standards while still meeting the needs and interests of their students (Vogel, 2010).

SBG allows for clearer communication with students and parents by having a clear set of course standards identified early in the course. Each student is evaluated on the standards with teacher feedback assessing how well the learner currently understands the course standards (Townsley, 2013). Parents are better able to understand their student's learning strengths and areas of struggle without non-academic influences like participation, attendance, and effort (Guskey, 2013). Providing students with a single grade or percentage as in traditional grading cannot present the level of detailed feedback necessary for effective learning (Marzano et al., 2001).

SBG eliminates a one-shot approach to grading objectives. The methods of SBG allow for many opportunities to exhibit student success and encourage learning (O'Connor,

2009). Identified standards allow students to achieve a prescribed level of proficiency but allow opportunities to reassess until a student becomes proficient for each standard (Rosales, 2013).

SBG does have its drawbacks. States and educational organizations have developed standards and benchmarks. State-developed standards articulate an inordinate amount of content (Marzano, 2006). Researchers assessed state standard documents and found over 200 standards and 3,903 benchmarks across 14 subject areas (Kendall and Marzano, 2000). Educators don't have the time to cover all the outlined standards without extending the school days, school year, and graduation requirements (Daggett, 2005).

In many cases, standards are under-developed or not well-written (O'Connor, 2009). Educators and administrators would have to 'unpack' each standard and pare it down to fit into the time available for instruction (Marzano, 2006). Marzano suggests identifying 20 measurement topics, where 15 is ideal, per subject per grade level (2006).

Some educators believe that with SBG their curriculum becomes irrelevant. They view SBG as having to adopt a new curriculum, possibly set by a textbook, and limiting supplementary activities (O'Shea, 2005). However, teachers still get to determine classroom activities. Standards only guide the formation of lessons; student outcomes and learning activities are teacher-developed and implemented with the goal of students learning the standard (O'Shea, 2005; O'Connor, 2009). Standards serve as "guideposts for teachers who could then tailor curriculum to build around individual student interests and needs" (Vogel, 2010). Teachers still have a large amount of discretion in their classroom and can use formative assessments to help guide activities (Chappuis & Chappuis, 2008). SBG allows for a clearer intent when constructing lesson plans as well (Cornally, 2013).

## Standards-Based Grading Practices

For the last 30 years, educational reforms focused on improving student achievement (Marzano, 2006). While no one reform has been adopted by a majority, there are aspects of SBG grading that have become a recent focus to better the grading system. Feedback and assessment are currently two topics discussed by educators implementing SBG and overlap to a great extent in much of research and theory (Marzano, 2010).

### Feedback

Feedback has long been identified for successful learning (Bransford, Brown, & Cocking, 2000). Grades are one form of feedback that receives the most attention (Reeves, 2011). Grades are most effective when a student knows what they are doing well and what they can improve upon. Educators must collect information about how students are doing and effectively share that information with the students and their parents (Kohn, 2012). Sharing of this information is the feedback students need to further their education.

Feedback is the responsibility of the teacher and the student. Learning is most effective when students seek and use feedback (Bransford et al., 2000). Feedback has been shown to guide students to more productive engagement in learning activities (Butler & Winne, 1995).

Timing and content of feedback is important. Feedback is most valuable when students have the opportunity to use it to revise their thinking as they are working on a unit or project (Bransford et al, 2000). Feedback should be low stakes with no final outcome and given during a unit with time for the student to make changes and further their understanding (O'Shea, 2005). Feedback should include descriptive information about the work relative to learning goals (Chappuis et al., 2008). Descriptive feedback should be about the qualities of

the student's work with suggestions on improvement (Black & Wiliam, 1998, Chappuis et al., 2008). Feedback needs to address specific features of the student work or performance relating to the learning standard (O'Shea, 2005). "A 7/10 or 3 (from a rubric) going into the gradebook is high stakes, provides no useful information about the learning targets, and contributes nothing that will improves student learning" (O'Shea, 2005, p. 109).

Descriptive feedback can be helpful when feedback is concise and specific. Students will succeed at a much higher rate when told to focus on specific areas than when they are offered over general and non-specific feedback (O'Connor, 2009). Teachers can provide comments, check-lists, and brief written summaries to help students (Dockery, 1995). After reviewing 7,827 studies on learning and instruction, John Hattie (1992) reported that providing students with specific information about their standings in terms of particular objectives increased their achievement by 37 percentile points (Marzano et al., 2001).

Feedback also offers long-term effects. Productive feedback can provide information about a domain and information for guiding tactics and strategies to help future learning (Butler et al., 1995).

**Assessment**

Assessments are another common form of feedback (Marzano, 2006). The effects of assessments can vary greatly based on frequency and type of assessment, but most often research has been positive (Marzano, 2006). Research on classroom assessment has indicated assessments should be formative and conducted frequently (Marzano, 2006).

Assessments can be broken down into two categories: formative assessment and summative assessment. Differentiating between the two is done by determining how the assessment results will be used (Chappuis et al, 2008; O'Connor, 2009). Summative

assessments are an assessment of learning where the results are used to make some sort of judgment such as a final grade and documents how much learning has occurred at a point in time (Chappuis et al., 2008).

Formative assessments, on the other hand, are any activities undertaken by teachers where the evidence is used to adapt the teaching to meet student needs (Black et al., 1998). Formative assessments are assessments for learning (Stiggins, 2006; O'Connor, 2009). These assessments provide students with descriptive feedback to move their learning forward (O'Connor, 2009). Formative assessments deliver information to students and teachers during the instructional process (Chappuis et al., 2008). No final or summative grade is given in a formative assessment but rather helps make a decision about what actions should be taken to further student learning (Chappuis et al., 2008).

**Reassessment**

SBG also emphasizes reassessment. In Rick Wormeli's *Fair Isn't Always Equal* (2006), he addresses differentiated instruction as "doing what's fair for students" (p. 3). Furthermore, he goes on to explain that not every student learns at the same pace as their classmates; learning rates of individuals vary even for adults. Assessments should be ongoing to help students learn and develop (Wormeli, 2006; Guskey, 2003).

Students may learn nothing from success but can begin learning from a mistake (Guskey, 2003). Through reassessment, students are given the time to try another approach, complete a few more examples, and take another day to process the information (Wormeli, 2006). Redoing assessments until students meet high expectations results in far more learning (Wormeli, 2011). Redoing assessments cannot only evaluate what the students learn

but can also help determine the teacher's effectiveness of corrective instruction (Guskey, 2003).

Reassessing students should be allowed for full credit and at the teacher's discretion (Wormeli, 2006). Redos and retakes allow students to become prepared for college and careers because they have learned the skills and content (Wormeli, 2011). As an educator, the assessment format can be changed and completed in a given time period. This could be limiting the redo to an oral discussion with the teacher or changing the questions and order on a forced-choice test. Students reflect on their mistakes and understand their efforts will count and can be used to improve their status through reassessment (Wormeli, 2006).

## Standards-Based Grading Implementation

Educational reform has led to recent trends including redefining the purpose and what's in a grade (Allen, 2005) to eliminating grades (Doak, 1962). Schools across the United States have begun implementing SBG. Within Iowa, many schools are still learning about SBG. However, some have begun the implementation process, which may take anywhere from three to 15 years depending on the implementation plan (Vogel, 2010).

Solon Community School District (SCSD) in Eastern Iowa implemented SBG during the 2012-2013 school year, five years after one teacher piloted SBG in his classroom. In the years following the pilot, the school worked with teachers, administrators, and board members to develop the grading system used today. Students and parents were informed about the new grading policy during the 2011-2012 school year (Townsley, 2012).

Implementation wasn't easy. SCSD received some parent concerns. A September 2012 article in *The Gazette* reported parent concerns about homework not counting towards student grades (Carlson, 2012). In a SBG system, homework is used as a vehicle for

feedback and extra practice, not points (Dockery, 1995). Solon teachers grade tests, projects, and activities as measures of the standards that students understand and have mastered (Carlson, 2012).

More recently, Ankeny Community Schools have been in the news about their transition to a SBG system. The Ankeny School District Board of Education began studying SBG during the 2008-2009 school year (Ingebrand, 2014). In a March 14, 2014 phone interview with Jill Urich, Assistant Superintendent of Curriculum and Instruction for Ankeny Schools, she said the Curriculum and Instruction department has been working closely with teachers providing them with professional development and opportunities to learn about SBG. Similar to Solon, the implementation process has brought forth parent concerns. A small group of high school parents formed "Stop Standards-Based Grading in Ankeny" to voice their concerns about homework and lack of overall grades (Erzen, 2014). The school district has invited parents, students, teachers, and administrators to be a part of the Standards-Based Grading and Reporting Committee to help with the implementation process including bringing forth frustrations and helping to find ways to overcome the issues.

At this point in Ankeny's implementation, teachers are making a shift towards SBG. Urich also indicated in the March 14, 2014 phone interview that teachers at all levels have begun removing extra credit opportunities for students and have reduced the influence homework has on student grades. Ankeny has utilized their stakeholder committee as well as professional learning communities to help make the change to SBG.

## Summary

Previous research has explored the purposes of grading and grading approaches. Research has indicated that many educational reforms are the cause of some changes in education to hold schools and teachers accountable for student knowledge including most recently the 2002 No Child Left Behind act and the 2006 reenactment of the Perkins Act. While reforms lead to implementation of reporting requirements, researchers indicate an unclear purpose of grades resulting in an unclear picture of student learning (O'Connor, 2011).

Traditional grading systems using percentage grades or a single letter grade are used by a majority of school districts (Munk et al., 2004), but there has been an increasing emphasis on student-performance and performance-based assessments that have brought forth CBE and SBG. There is very little research on the effectiveness of these approaches in classrooms. Research at the secondary school level is even more limited, and no research is available for using SBG in CTE programs. As school districts progress towards more accurate grading practices including SBG, these concerns warrant the need for more research in SBG at the secondary school level and within CTE programs.

# CHAPTER 3. METHODS

The purpose of this study was to determine the perceptions of high school agricultural educators in Iowa regarding current grading practices and standards-based grading (SBG). The objectives of this study were to:

1. Explore agricultural educators' current grading practices
2. Explain what agricultural educators know about SBG
3. Define the local driving force of the SBG movement
4. Determine agricultural educators' attitudes towards SBG
5. Identify current grades-based professional development activities and opportunities for future professional development activities.

This chapter outlines the methods and procedures used to collect and analyze the data. First, the research design used in this study is discussed followed by a description of participants. An explanation of the instrument development and procedures for determining reliability and validity are also included. The last section discusses how the data were collected and analyzed.

## Research Design

This study used a descriptive survey research design for the collection and analysis of data. As described in the purpose and objectives, the variables included were not manipulated or controlled and the objectives sought to explore and describe behaviors. The data were collected using Qualtrics, an online survey software and insight platform (Qualtrics, LCC, 2014). An online survey was deemed appropriate, as the Internet has become more widespread. A cultural shift arose with the growth of the Internet and many prefer communicating through e-mail (Dillman, Smyth, & Christian, 2009). Web-based surveys

also have the potential to reach a large population while reducing the costs associated with mail surveys (Ary, Jacobs & Roberts, 2010). In addition to reaching more respondents, web-based surveys also allow for quick returns and results tabulation (Dillman et al., 2009).

## Subjects

This study's focus was on the grading practices of high school agricultural educators. The population for this study consisted of all high school agricultural educators in Iowa. A list of current agricultural educators was obtained from the Iowa Agricultural Education Directory on the Iowa FFA Association website. The Directory contains the names and emails for all agricultural educators employed by a K-12 school district within the state of Iowa. The list contained 237 agricultural educators with only one duplicate found making the total population for this survey 236. In addition to checking for duplicates, the list was also checked to ensure a corresponding email address for each educator.

The entire population was contacted allowing the study to be classified as a census survey (Ary et al., 2010). By including all agricultural educators ($N$=237), an adequate response rate can be obtained. A census is appropriate for this study because the population being studied is well-defined and contact information was available for the entire population (Ary et al., 2010).

## Instrument

The literature revealed very few instruments to evaluate teachers' knowledge and perceptions of SBG, a relatively new grading approach. Marzano (2000) developed an instrument to evaluate teachers' beliefs on the purpose of grades and their bases for grading. The instrument used nine Likert scale questions and one multiple-choice question that could easily be duplicated and filled out by the staff in a school district that was considering using

SBG. Brookhart (2011) further enhanced the instrument by asking conversation starters. These statements were suggested to use to get teachers to start thinking about the purpose of grades and how they grade student learning. Brookhart (2011) and Marzano (2000) believed identifying the purpose of grades is the first step in making the change to SBG.

Other literature provided insight on the implementation of standards-based grading. In 2002, Robert Schmidt studied how middle school teachers blended standards-based grading with an integrative curriculum approach while Jill Urich (2012) reported her findings on SBG implementation in a middle school. Schmidt (2002) utilized a teacher survey to collect data while Urich (2012) developed and conducted interviews with teachers.

The instruments developed by Marzano (2000), Schmidt (2002), and Urich (2012), along with the discussion statements by Brookhart (2011), were used as a model for designing an instrument to measure teachers' current grading practices and perceptions of SBG. The final questionnaire for this study included a variety of question types including Likert-scale questions, multiple-choice questions, multiple-select questions, short answer, order rank, and frequency. The final questionnaire can be found in Appendix A.

The questionnaire sought information from five different areas: current grading practices and beliefs, current professional development, SBG knowledge, and demographics. Questions were grouped by related topics. Using this grouping technique, it is easier for respondents to answer as well as obtain answers that are well-thought (Dillman et al., 2009). Questions were also ordered with the most applicable questions first, or those relating to the majority of the population. These questions include those about current grading practices, beliefs, and professional development.

**Current Grading Practices and Beliefs**

SBG doesn't ask teachers to change a small detail in their grading practices; it is a philosophy change (Vogel, 2012). Evaluating beliefs about grading, purposes of grades, and factors that should be included in a grade is an important step when designing an effective grading system (Marzano, 2000). Many questions developed for this survey explore current grading practices of teachers as well as their beliefs about grading and its purposes.

Questions regarding current grading practices were developed using multiple-answer and multiple-choice. In addition, two frequency scales were used asking respondents to identify the frequency they use various learning approaches and learning tools.

Three questions were asked related to extra credit, retesting, and accepting late work. These three questions were general questions and were followed up with a specific question regarding the circumstances when each was used. By asking the general questions first followed by the more subjective question, the general questions help specify and clarify the following subjective question making it easier for participants to respond (Ary et al, 2010).

When asking agricultural educators about their beliefs on grading, respondents were asked to identify using a Likert scale. A Likert scale is one of the most widely used to assess attitudes and beliefs (Ary et al., 2010). The Likert scale used in this questionnaire ranged from 1 (Strongly Disagree) to 4 (Strongly Agree). Eight statements addressing grading beliefs were grouped together using one Likert scale to help with questionnaire readability.

Six questions were also developed addressing the current standards agricultural educators are using. Standards are what teachers evaluate students' performance on within SBG (Guskey, 2013). Because they play such a large role, the researcher felt it was important to determine which standards are being used in the classroom along with how they

are being communicated. In addition, there are no set standards in Iowa for agricultural education. Two questions addressed standards used including one specific to agricultural education and a second question regarding other content standards used. In addition, one question asked about how standards are communicated with administration, students, and parents. The last question developed about standards included a question regarding the average number of standards that are covered in a semester for a single course.

**Professional Development**

To implement SBG, a great deal of effort needs to go in to educating teachers on this new approach. Collaboration, workshops, and professional learning communities all provide a source of professional development to help with the successful implementation of SBG (Vogel, 2010).

Evaluating current professional development opportunities was included in the instrument. Five questions addressed professional development that participants currently are offered both within their school district, regionally, and nationally. Three questions addressed professional development opportunities on the local level. These included questions regarding professional development opportunities within the school district as well as concepts covered within these local professional development opportunities. One question was directed at how much time a school district will spend on professional development.

The final two questions regarding professional development asked respondents to identify opportunities outside of their district that they have participated in. These opportunities include professional organization in-services and conferences along with area education association workshops.

The topics addressing professional development used multiple-response, multiple-choice, and short answer questions. Short answer questions allowed respondents to elaborate on a previous question. These open-ended questions were included because the amount of possible answers is too great for the researcher to predict (Ary et al., 2010).

**SBG Knowledge and Implementation**

To gauge what agricultural educators already knew about SBG, three questions were developed. A set of eight statements was presented asking agricultural educators to identify their agreement with each statement in the context of a traditional grading system using a Likert scale. The Likert scale included the following range: Not at All (1), Somewhat (3), To a Great Extent (5). Participants were then presented with the same questions and asked to select their agreement with each statement in a SBG system.

The third question was left open-ended and asked participants to define SBG. The researcher believed that leaving this as an open-ended question would allow for the best understanding of agricultural educator knowledge of SBG because respondents are not limited to choosing a provided answer (Ary et al., 2010).

**Demographics**

Using the question order suggestions by Dillman et al (2009), questions that could be viewed as sensitive or potentially objectionable were placed at the end. Those questions addressed demographic information of respondents and were intended to gather some information about the respondents. Questions included courses taught, years of teaching experience, gender, etc. Respondents have fewer objections to providing personal information after completing the questionnaire (Ary et al., 2010).

## Validity and Reliability

Questions were compiled and entered into Qualtrics. Before implementing the survey, the researcher examined the validity of the instrument. Validity can be defined as the extent to which an instrument measures what it claims to measure (Ary et al., 2010). Content and face validity were both determined using pretesting guidelines outlined by Dillman et al. (2009).

Dillman et al. (2009) first suggests obtaining feedback from a variety of people who are knowledgeable about one or more areas of the survey content. To do this, the researcher sought individuals in the educational field. Included on this initial feedback panel were two educators familiar with standards-based grading from area high schools implementing SBG, a College of Education graduate assistant in educational research at Iowa State University, and one professor in the Department of Agricultural Education and Studies at Iowa State University. This group looked at question content, order, and technical problems associated with the questionnaire draft. Using their feedback, the researcher made adjustments to question phrasing, answer options, and question order.

After presenting the survey to the panel, the researcher also piloted the survey with out-of-state agricultural educators. A pilot study can help determine whether "the proposed questionnaire and procedures are adequate for the larger study" (Dillman et al., 2009, p. 228). An agricultural educator from each of the following states: Missouri, New Jersey, Tennessee, Wisconsin, and Kentucky, took the survey as a pilot group to further evaluate the validity of the survey. These pilot group participants had no role in helping develop the instrument but all have a background in agricultural education and share similarities to the survey population. Pilot survey participants were asked to take the survey and provide feedback

regarding the questionnaire format, question syntax, and implementation. Changes were made to the instrument based on feedback from the participants in the pilot study.

Cronbach's alpha was used to determine the reliability of the survey and performed as a post-hoc reliability test. A modest reliability coefficient of 0.60 should be obtained when used for research purposed (Ary et al., 2010). Based on the types of questions asked, the reliability tests for this study were calculated for grading beliefs and SBG knowledge. A coefficient of 0.683 was found for grading beliefs and 0.608 for SBG knowledge which were both acceptable (Ary et al., 2010).

## Survey Administration

As part of previous Agricultural Education and Studies courses, the researcher completed training in human subject research through the Iowa State University Office of Research Compliance. Human subject training and an Exempt Study Review Form were submitted to the Iowa State University's Institutional Review Board (IRB) (Appendix C). The study was deemed to be exempt and upon notification (Appendix B) the instrument was finalized using Qualtrics.

The online survey software, Qualtrics (2014), is a program provided through Iowa State University for professors and students to conduct online surveys. First developed for academia, Qualtrics is designed with the researcher in mind (Smith, 2013). Researchers can develop an instrument using a variety of questions and get reliable results in a short time period.

Using this software, the instrument for this study was created and distributed. The email feature within Qualtrics allowed for distribution to the participants. In addition to the features used to develop the study, Qualtrics also tracks participation of the population.

Email was the chosen method for this study as agricultural educators have access to school email throughout the day. The online survey also allowed participants to respond at a time that was convenient for them.

Contact with participants was made following recommendations by Dillman et al. to achieve high response rates (2009). Dillman et al. (2009) recommended a minimum of five contacts listed below with their distribution dates. All letters can be found in Appendix C.

1. A pre-notice letter – Thursday, February 20, 2014
2. The questionnaire link – Tuesday, February 25, 2014
3. A reminder letter – Thursday, February 27, 2014
4. A second reminder – Monday, March 3, 2014
5. A final contact – Thursday, March 6, 2014

A pre-notice email was sent using Qualtrics on February 20, 2014 notifying the participants of the study's purpose and the importance of their responses to the study. Moving quickly with a set timeline, the questionnaire was distributed to participants on February 25, 2014. The email included a questionnaire link specific to each participant. Confidentiality was addressed in each contact made with participants. Names and email addresses were used to make the contact with participants. Once their survey was submitted, their name and email address was deleted.

Qualtrics allows a researcher to send out reminder emails to those participants having yet to submit a survey. In addition, Qualtrics tracks participant's completion. These two features allow reminder emails to be sent only to those not having responded. Using these features, a reminder email was sent to those agricultural educators who had not completed the survey before February 27, 2014. The email contained the link as well as highlighted the

few risks associated with completing the survey. A second reminder was sent out March 3 encouraging participants to complete the survey before March 7, 2014. A final reminder was distributed on March 6 that once again included the survey link and addressed participant confidentiality and anonymity. The questionnaire was closed on March 18, 2014.

Response rate was calculated after the survey was closed. The Iowa Agricultural Education Directory consisted of 236 secondary agricultural educator email addresses. The survey was sent to each address where 11 emails were undeliverable. This gave the researcher an accessible population of 225 participants. On March 18, 2014, 157 secondary agricultural educators within the accessible population had provided responses. This resulted in a 69.8% response rate.

## Data Analysis

Survey responses were automatically recorded by Qualtrics as participants completed the survey. After the questionnaire was closed on March 18, 2014, raw data was checked for missing data and errors. Incomplete data and response set errors were documented and eliminated from the dataset. All individual identifying data were removed including email addresses to ensure confidentiality.

Objectives were addressed using similar analysis methods. Descriptive statistics (i.e., frequencies, means, and standards deviations) were used to describe results. Responses to write-in questions were analyzed and coded for similarities. Results for these questions were reported as frequencies.

# CHAPTER 4. FINDINGS

The purpose of this study was to determine the perceptions of high school agricultural educators in Iowa regarding current grading practices and standards-based grading. The study sought to identify agricultural educators' perceptions of grading practices, specifically standards-based grading (SBG), and the extent to which they use specific grading techniques. The findings and results of this study are presented in four major sections: 1) demographics, 2) current grading practices and beliefs, 3) current professional development, and 4) SBG knowledge.

## Demographics

Findings presented in this section were from the last part of the questionnaire. Participants were asked to provide basic demographic information about their teaching credentials including years taught and Curriculum for Agricultural Science Education (CASE) certifications. Participants also responded to questions about their current teaching assignment such as teaching and prep periods, average number of students in an agricultural education course as well as total number of students in their high school.

### Teaching Credentials

Respondents were asked to provide basic teaching credential information. This included the total number of years of teaching high school agricultural education along with CASE certifications.

*Years of teaching experience*

Respondents (*n*=135) were all secondary agricultural educators employed by a high school in Iowa (Figure 1). An equal number of respondents (25%) were in their first three years of teaching high school agriculture courses or have been in the profession for over 25

years. Similarly, 19% of respondents have taught between four to nine years or 10 to 15 years. Only 14% identified 16 to 25 years as the total number of years teaching high school agriculture.

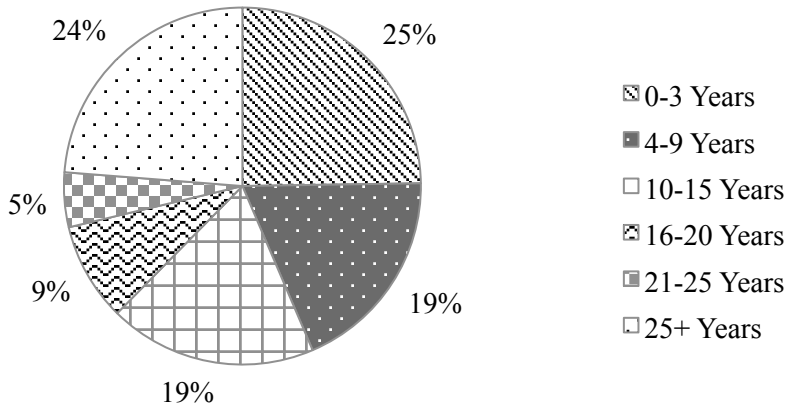



Figure 1. Distribution by years of teaching experience of Iowa agricultural educators responding to a questionnaire on grading (*n*=135)

*CASE certifications*

CASE is a curriculum resource for agricultural educators that utilizes science inquiry for lesson foundations and an activity-, problem-, project-based instruction (CASE, 2013). To become certified in a CASE course, an educator must attend a 10-day extensive professional development institute that ensures quality teaching of the curriculum (CASE, 2013). Of the respondents, 40% are certified to teach at least one CASE course or have attended a CASE training institute (Table 1).

As of 2014, CASE offered five different course institutes with a sixth course in field testing during the 2013-2014 school year (CASE, 2013). These respondents hold CASE course certification for Introduction to Agriculture, Food and Natural Resources (74%); Principles of Agricultural Science – Animal (28%); Principles of Agricultural Science – Plant (52%); Natural Resources and Ecology (7%); and Animal and Plant Biotechnology (6%).

Table 1. Frequencies and percentages of CASE certifications held by Iowa agricultural educators participating in a questionnaire on grading (*n*=54)

| CASE Course | Frequency | Percentage |
|---|---|---|
| Introduction to Agriculture, Food, and Natural Resources | 40 | 74.0 |
| Principles of Agricultural Science – Animal | 15 | 27.7 |
| Principles of Agricultural Science – Plant | 28 | 51.8 |
| Natural Resources and Ecology | 4 | 7.4 |
| Animal and Plant Biotechnology | 3 | 5.6 |

**Teaching Assignments**

Agricultural educators in Iowa teach a variety of courses in agricultural education and schedules vary within each school district. In this section, agricultural educators identified the total number of administrators, teachers, and students in their school district, average number of students in an agricultural education course, courses taught, and a breakdown of their teaching day by periods.

*Number of administrators the school district*

Respondents provided the number of administrators within their school district. The administrator most often found in schools was a principal and/or vice principal (*M*=1.54, *SD*=0.99). Guidance counselors were also considered as part of administration and found in 132 of respondents schools (*M*=1.36, *SD*=0.92). Respondents also identified having a school improvement leader (*M*=1.05, *SD*=0.53), dean of students (*M*=1.03, *SD*=0.56), registrar (*M*=0.9, *SD*=0.49), or curriculum director (*M*=0.85, *SD*=0.5).

*Number of teachers in high school*

The number of teachers at their high school was also provided by respondents (Table 2). A majority (58.1%) of respondents have less than 25 teachers at the high school level. The number of teachers for 25.0% of respondents was 26 to 50 teachers while only 4.5% of school districts have more than 51 teachers in grade 9 through 12.

Table 2. Frequencies and percentages of teacher in the 9-12 school building with agricultural educators participating in a grading questionnaire (*n*=112)

| Number of high school teachers | Frequency | Percent |
|---|---|---|
| 1-15 teachers | 20 | 17.9 |
| 16-25 teachers | 45 | 40.2 |
| 26-50 teachers | 28 | 25.0 |
| 51-75 teachers | 1 | 0.9 |
| 76-100 teachers | 2 | 1.8 |
| 100+ teachers | 2 | 1.8 |

*Number of students in high school*

Iowa agricultural educators were asked to identify the size of the school they teach in based on total number of students in grades nine through 12 (*n*=134). Very few agricultural educators are in a high school enrollment is less than 50 (4.0%) or more than 600 students (6%) in grades nine through 12 (Figure 2). A majority of participating agricultural educators are in a school district with 151 to 400 students (55%). Agricultural educators in school districts with 101-150 students in grades nine through 12, represented 13% of those surveyed, while 16% are in a school district with 50 to 100 students in grades nine through 12. Nine agricultural educators surveyed were in a school district with 401 to 600 students.

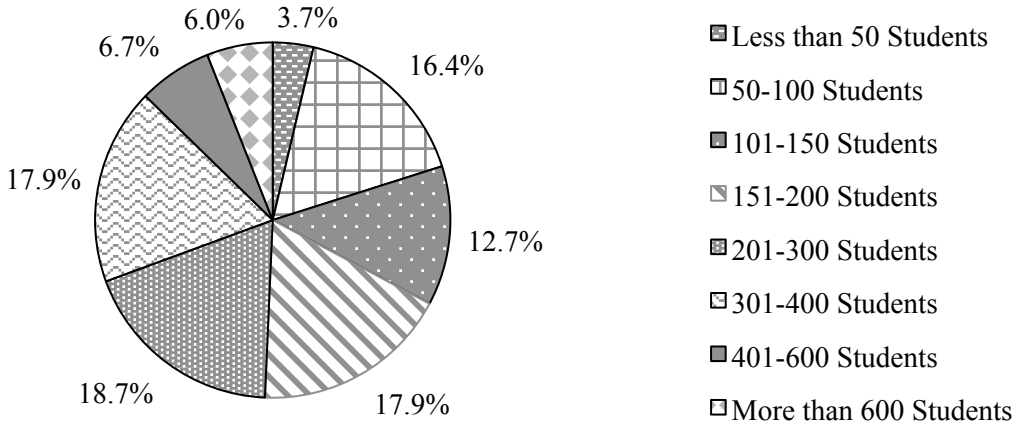



Figure 2. Distribution by number of students in grades 9-12 at schools of agricultural educators responding to a questionnaire on grading (*n*=134)

*Number of students in agricultural education courses*

Respondents also identified the average number of students in an agricultural education course (Table 3). Agricultural education courses with less than 10 students on average represented 11% of the total participants. A majority of class sizes were between 10 to 15 students (34%) and 16 to 20 students (24%). The remaining respondents had class sizes between 21 and 25 students (6%), 26 and 30 students (8%), and more than 30 students (16%).

Table 3. Frequencies and percentages of agricultural education class size of agricultural educators responding to a questionnaire on grading (*n*=134)

| Average Class Size | Frequency | Percent |
|---|---|---|
| Less than 10 students | 15 | 11.2 |
| 10 to 15 students | 46 | 34.3 |
| 16 to 20 students | 32 | 23.9 |
| 21 to 25 students | 8 | 6.0 |
| 26 to 30 students | 11 | 8.2 |
| More than 30 students | 22 | 16.4 |

*Course offerings*

Of the agricultural educators participating in this study, 100% teach classes at the high school while 52% also teach a middle school course (Table 4). Agricultural educators identified animal science (89.6%), horticulture (75.4%), and introductory agriculture (88.8%) as the most offered in the high school. Agricultural business is taught by 72.4% of respondents while agronomy is taught by 73.9% of agricultural educations participating in this study. Agricultural mechanics including welding is taught by 60.4% of participants. Courses in natural resources and wildlife are taught by 56.7% and 29.9% respectively. Soil science is taught by 54.5% of respondents and landscape courses are taught by 44.0%. Other courses taught by participants include agricultural communication, leadership, and issues

Table 4. Frequencies and percentages of courses offered by agricultural educators participating in a grading questionnaire (*n*=134)

| Course Name | Frequency | Percent |
|---|---|---|
| Animal Science | 120 | 89.6 |
| Introductory Agriculture | 119 | 88.8 |
| Horticulture | 101 | 75.4 |
| Agronomy | 99 | 73.9 |
| Agricultural Business | 97 | 72.4 |
| Agricultural Mechanics | 81 | 60.4 |
| Natural Resources | 76 | 56.7 |
| Soil Science | 73 | 54.5 |
| Landscape | 59 | 44.0 |
| Agricultural Communications, Leadership, Issues | 48 | 35.8 |
| Agrimarketing | 47 | 35.1 |
| Wildlife | 40 | 29.9 |
| Animal Ecology | 13 | 9.7 |
| Biotechnology | 6 | 4.5 |
| Food Science | 3 | 2.2 |

(35.8%), agrimarketing (35.1%), animal ecology (9.7%), biotechnology (4.5%), and food science (2.2%). Agricultural educators also offer 16.4% of these courses for college credit.

*Average daily schedule*

Agricultural educators participating in this study were asked to identify the number of periods in a day where they are teaching, planning, and supervising (Table 5). Teaching periods are where the education is instructing students in a class setting. Planning or prep periods are periods an educator utilizes to prepare for classes. Supervisory periods can be broken into supervisory periods including supervising a study halls or advisory group. A separate category was also available for agricultural education supervisory periods where an educator uses the period to visit or work with students on their supervised agricultural experience programs.

On average, educators reported spending 81.9% of their school days teaching courses. Only 5 agricultural educators (3.9%) identified having an agricultural education supervisory period. Prep periods are included in 113 of the respondents' days (89.0%) and range from 25% of a period up to two class periods. Supervising a study hall or advisory group was 48 of respondents (37.8%).

Table 5. Means and standard deviations of class periods agricultural educators teach, supervise, or plan (*n*=127)

| Period | *n* | Minimum | Maximum | Mean | *SD* |
|---|---|---|---|---|---|
| Teaching Periods | 127 | 3 | 12 | 6.15 | 1.44 |
| Supervisory Periods | 48 | 0 | 2 | 0.42 | 0.58 |
| Ag. Ed. Supervisory Periods | 5 | 0 | 1 | 0.04 | 0.19 |
| Planning/Prep Periods | 113 | 0 | 3 | 0.95 | 0.39 |

## Agricultural Educator Grading Beliefs

Participating agricultural educators were asked to identify their current grading beliefs through a series of questions. Participants were asked to define grades, identify what they believe should be included in grades and the purpose of grades.

### Grades Defined

Respondents provided a written answer to define what grades mean to them. In the 137 definitions provided, 24 common terms and phrases were used to define grades. Table 6 summarizes those terms and phrases by arranging them in order from the highest to the lowest number of occurrences within the 137 definitions.

Definitions containing the term know or knowledge were found most in the respondents' definitions (*n*=20). Examples of how the terms were used to define grades are:

- "An indicator of where the student's knowledge is at this time."
- "A tool to help students understand where their knowledge base is in relation

to my expectations and course expectations."

- "A measure of how well students know the material."

The second most commonly used terms were learn, learning, or learned. These terms were found in 18 responses. The following examples of how the terms were used:

- "A caption of what a student has learned or provided evidence of knowledge learned based on outcomes and components taught in the classroom."
- "A measureable way to show student learning."
- "A way to identify how students are learning and completing work."

Reflection was the third most commonly found term in the respondents' definitions of grades. Reflection or similar versions was found in 15 responses. This term was used with terms such as learning (*n*=4), knowledge (*n*=4), or understanding (*n*=2). Other terms were used once with the following terms: performance, comprehension, potential, assessment, completion. Some examples of how reflect or reflection was used were:

- "Reflection of student's work and understanding of the material."
- "A scale to reflect student performance."
- "Reflection of what a student has learned in my course."

Respondents used a letter, requirement, or number in 14 responses (Table 6). These, and like terms, were the fourth most popular term in definitions. A few examples of how these terms were used are:

- "Required by administrators and parents as an indicator of student performance."
- "No more than a number put to achievement."
- "A letter I have to assign to a student to please their parents."

Table 6. Terms and phrases used to define grades in secondary agricultural education programs according Iowa agricultural educators participating in a questionnaire on grading (*n*=138)

| Term and Phrases | *n* |
|---|---|
| Know/Knowledge | 20 |
| Learn/Learning/Learned | 18 |
| Reflection | 15 |
| A Letter/Requirement | 14 |
| Achievement | 10 |
| Effort | 10 |
| Level of Competency/Mastery | 8 |
| Performance | 8 |
| Completion of Work | 7 |
| Points Earned/Currency/Payment | 7 |
| Content Utilization/Application | 6 |
| Understanding | 6 |
| Snapshot | 5 |
| Rank | 4 |
| Work Ethic/Responsibility | 3 |
| Skills | 3 |
| Measuring Stick | 3 |
| Feedback/Communication | 3 |
| Motivation | 2 |
| Progress | 2 |
| Ability to Regurgitate | 2 |
| Needed for College/Scholarships | 2 |
| Attitude | 1 |
| Potential | 1 |

The least used terms and phrases were motivation (*n*=2), progress (*n*=2), ability to regurgitate (n=2), needed for college and scholarships (*n*=2), attitude (*n*=1), and potential (*n*=1).

**Grade Components**

Respondents were provided with the five grading components and asked to select all those they believed should be included in a student's grade (Table 7). Most (95.1%) believed

grades should include current knowledge while only 50.3% agreed that including prior knowledge in a grade is important. Student behavior characteristics including effort, responsibility, and attendance were also important to include by 86.7%, 69.2%, and 42.0% of respondents, respectively.

Table 7. Frequencies and percentages of grading components agricultural educators believe should be including in student grades (*n*=143)

| Grade Components | Frequency | Percent |
|---|---|---|
| Current Knowledge | 136 | 95.1 |
| Effort | 124 | 86.7 |
| Responsibility | 99 | 69.2 |
| Prior Knowledge | 72 | 50.3 |
| Attendance | 60 | 42.0 |

Respondents also identified their agreement with statements directly related to a traditional grading system (Table 8). Respondents most strongly agreed that academic achievement should be the primary basis for grades (*M*=3.99, *SD*=0.82). Participating agricultural educators also believed that student effort should also contribute to grades in a traditional grading system (*M*=3.76, *SD*=0.90). Student behavior should make the least influence on grades (*M*=2.94, *SD*=1.18).

Table 8. Distribution of means and standard deviations of agricultural educators' beliefs on grading criteria in a traditional grading system.

| Traditional Grading System Grading Criteria | *n* | Mean | *SD* |
|---|---|---|---|
| Grades should be based on academic achievement. | 122 | 3.99 | 0.82 |
| Grades should be based on student effort. | 123 | 3.76 | 0.90 |
| Grades should be based on student behavior. | 126 | 2.94 | 1.18 |

Scale: 1 = Not at All, 3 = Somewhat, 5 = To a Great Extent

**Purpose of Grades**

Respondents identified their agreement with statements regarding the purpose of grades in four statements. The findings, as shown in Table 9, showed participants most strongly agreed with *grades should reflect student achievement of intended learning outcomes* (*M*=3.57)(*SD*=.5). Participants also agreed that a grade should reflect an individual's achievement (*M*=3.40)(*SD*=.51). The final two statements saw the most variation. Participants didn't agree as strongly with *grading policies should be set up to support motivation to learn* (*M*=3.18)(*SD*=.7). The lowest mean (*M*=3.07) was for the item stating *students and parents are the primary audience for the message conveyed in grades*.

Table 9. Distribution of means and standard deviations of the purpose of grades according to the participating Iowa agricultural educators

| Purpose of Grades | *n* | Minimum | Maximum | Mean | *SD* |
|---|---|---|---|---|---|
| Grades should reflect achievement of intended learning outcomes. | 150 | 3 | 4 | 3.57 | 0.50 |
| Grades should reflect a particular student's individual achievement. | 150 | 2 | 4 | 3.40 | 0.51 |
| Grading policies should be set up to support motivation to learn. | 148 | 1 | 4 | 3.18 | 0.70 |
| Students and parents are the primary audiences for the message conveyed in grades. | 150 | 1 | 4 | 3.07 | 0.58 |

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree

Participants also responded to a second set of questions regarding their beliefs on the purpose of grades in a traditional grading system (Table 10). Participants most highly agreed (*M*=4.13, *SD*=0.55) that grades should be used to provide feedback about student learning to students and parents. Respondents also indicated that grades should be used to make

administrative decisions such as advancing to the next course, class rank, and credits earned (*M*=3.81, *SD*=0.75). Agricultural educators also were similar with their agreement on the extent to use grades to motivate student (*M*=3.57, *SD*=0.98), provide guidance (*M*=3.53, *SD*=0.82), and plan instruction (*M*=3.47, *SD*=1.00).

Table 10. Means and standard deviations of agricultural educators' beliefs of grade purposes in a traditional grading system

| Grading Statement in Traditional Grading Systems | *n* | Mean | *SD* |
|---|---|---|---|
| Grades should be used to provide students and parents with feedback about student learning. | 125 | 4.13 | 0.74 |
| Grades should be used to make administrative decision such as student's progress to the next course level, class rank, credits earned and so on. | 125 | 3.81 | 0.75 |
| Grades should be used to motivate students. | 122 | 3.57 | 0.98 |
| Grades should be used to provide students with guidance relative to courses they should take, occupations they should consider and so on. | 125 | 3.53 | 0.82 |
| Grades should be used to plan instruction. | 124 | 3.47 | 1.00 |

Scale: 1 = Not at All, 3 = Somewhat, 5 = To a Great Extent

## Agricultural Educator Student Learning Approaches and Grading Practices

In this section, respondents' answers are provided for questions regarding student learning approaches and current grading practices. Results include frequencies of learning approaches, retakes, extra credit, and late work as well as what student's grade reflect.

### Learning Approaches

Agricultural educators identified the frequency of use of specified learning approaches (Table 11). Hands-on group activities were the most frequently used by agricultural educators (*M*=2.47, *SD*=1.29). The least used learning approach was found to be standardized tests (*M*=6.59, *SD*=0.82). Real-life problems (*M*=2.76, *SD*=1.44) was second followed closely by hands-on individual activities (*M*=2.95, *SD*=1.43). Lecture (*M*=3.98,

*SD*=1.78), team-based activities (M=4.09, *SD*=1.53), and textbooks (*M*=5.15, *SD*=1.78) were used less frequently.

Table 11. Distribution of means and standard deviations of learning approaches used by agricultural educators.

| Learning Approach | *n* | Mean | *SD* |
|---|---|---|---|
| Hands-on Group Activities | 148 | 5.53 | 1.29 |
| Real-life Problems | 148 | 5.24 | 1.44 |
| Hands-on Individual Activities | 148 | 5.05 | 1.43 |
| Lecture | 148 | 4.02 | 1.78 |
| Team-based Activities | 148 | 3.91 | 1.53 |
| Textbooks | 148 | 2.85 | 1.78 |
| Standardized Tests | 148 | 1.41 | 0.82 |

Scale: 1 = Least frequently used, 7 = Most frequently used

**Assessments**

Participants defined assessment in their own words. Respondents provided 116 definitions with nine common themes. The most used definition by respondents of assessment was a measurement of learning (47.7%). Others defined assessment as a measurement of understanding (13.8%), measurement of application (7.7%), and measurement of performance (5.2%). Four respondents (3.4%) described assessment as a measuring device while two (1.7%) believe assessments compare a student to their peers. Others defined assessment as a test (8.6%) or student reflection of their work (1.7%).

Assessments used in respondents' classrooms include formative assessments and summative assessments. Respondents were provided with the following definitions:

- Formative Assessments – assessments that monitor student learning to provide feedback to help improve teaching and learning
- Summative Assessments – assessments to evaluate student learning without intentions of re-teaching or furthering learning afterwards

Many respondents (63.1%) identified using both but more formative assessments while 7.4% use only formative assessments (Table 12). Summative assessments only were used by 2.0%. More summative assessments with few formative assessments were identified being used by 27.5% of respondents.

Table 12. Frequencies and percentages of assessments used by agricultural educators participating in a questionnaire on grading (*n*=149)

| Type of Assessments Used | Frequency | Percent |
|---|---|---|
| Both but more Formative Assessments | 94 | 63.1 |
| Both but more Summative Assessments | 41 | 27.5 |
| Formative Assessments Only | 11 | 7.4 |
| Summative Assessments Only | 3 | 2.0 |

With assessment, agricultural educators identified the frequency to which they use each assessment type (Table 13). Individual projects (*M*=3.97, *SD*=0.92) and written papers (*M*=3.97, *SD*=1.37) are most frequently used by participants. Group projects (*M*=3.87, *SD*=1.01) followed with participants using these third most frequently. A group of assessments were used similarly including hands-on assessments (*M*=3.83, *SD*=0.82), written

Table 13. Means and standard deviations of assessment types used by Iowa agricultural educators

| Assessment Type | *n* | Mean | *SD* |
|---|---|---|---|
| Individual Projects | 139 | 3.97 | 0.92 |
| Written Papers | 141 | 3.97 | 1.37 |
| Group Projects | 140 | 3.87 | 1.01 |
| Hands-On Assessments | 138 | 3.83 | 0.90 |
| Written Exams | 136 | 3.82 | 0.95 |
| Rubrics | 138 | 3.81 | 1.01 |
| Student Self-Assessment | 138 | 3.49 | 1.46 |
| Oral Exams | 136 | 3.04 | 1.61 |
| Portfolios | 134 | 2.07 | 1.43 |
| Standardized Exams | 138 | 2.05 | 1.50 |

Scale: 1 = Never Used, 2 = Less than once per semester, 3 = 1-3 times per semester, 4 = 4-7 times per semester, 5 = 8 or more times per semester

exams (*M*=3.82, *SD*=0.95), and rubrics (*M*=3.81, *SD*=1.01). Portfolios (*M*=2.07, *SD*=1.43) and standardized exams (*M*=2.05, *SD*=1.50) were least used by participants as forms of assessment.

**Retests and Retakes**

Of the responding agricultural educators, 75% offer students the opportunity to retest (*n*=148). Retakes and retests were offered for a variety of reasons. Participants were asked to write in the circumstances when retakes and retests were offered (Table 14). Similarities between the 108 responses were found between answers and 13 common phrases and terms were used to define these circumstances. Table 14 summarizes those terms and phrases.

Table 14. Terms and phrases used to describe circumstances in which agricultural educators offer the opportunity to retake or retest (*n*=108)

| Circumstances | *n* |
|---|---|
| Low Individual Performance | 40 |
| Low Class Performance | 22 |
| Absence | 15 |
| Student Explanation and Development of Relearning Plan | 14 |
| Effort | 10 |
| School Policy | 8 |
| Special Education, 504 Plan, IEP | 7 |
| No Limits to Retakes/Retests | 7 |
| Limited Number of Retakes/Retest | 4 |
| Limited Retake Grade/Percent | 4 |
| Teacher Initiated | 4 |
| Courses Specific | 2 |
| Limited Retake Time Window | 2 |

The most frequent circumstance when agricultural educators offer a retake or retest was found to be low individual performance (*n*=40). Examples of this circumstance include:

- "I offer a retake or retest whenever a student does not achieve at least 90% on any assignment or task."

- "If they fail the test (below 60%), they may retake the test. The highest they can get on a retake is a 69%."

The second most common circumstance was when an agricultural educator noticed the entire group did poorly. Low group performance was found in 22 responses. Agricultural educators explain low group performance examples as follows:

- "I only offer a retake if the class as a whole does poorly. I feel that if the class does poorly, then I didn't teach the material in a way they understood it."
- "When I feel the class as a whole did not understand the concept."
- "If the majority of the class does not do well."

Agricultural educators offer retakes and retests for those students who are absent from class. Absence (*n*=15) was the third most common circumstance. The following are examples of absences as retake circumstance:

- "Illness, extended absence, family situations."
- "If I feel like a student deserves a second chance due to missed days."

The circumstances provided in the fewest answers included limited number of retakes (*n*=4), limited retake grade/percent (*n*=4), and teacher initiated retake opportunities (*n*=4). Course specific retakes and a limited retake window were found in only two responses.

*Late work*

Students were allowed to turn in late work by 88.6% of responding agricultural educators (*n*=149). Respondents provided the circumstances and requirements for turning in late work. Within these answers, 10 common circumstances and requirements were found and are summarized in Table 10.

The most commonly identified requirement was a time restriction. Responses that identified a time restriction were found in 45 responses. Examples of how the requirement was used are:

- "I'm required by administration to take all late work up to the last five days of the grading period.
- Late work is accepted up until "one week after the item is due."

Table 15. Terms and phrases used by agricultural educators to describe circumstances and requirements on accepting late work (*n*=125)

| Circumstances and Requirements | *n* |
|---|---|
| Time Restriction | 45 |
| Grade Restriction | 30 |
| Absence | 24 |
| School Policy | 18 |
| Time and Grade Restriction | 14 |
| No Restrictions or Circumstances | 12 |
| Teacher Arranged | 8 |
| Teacher Discrepancy | 5 |
| Effort | 3 |
| Failed to Complete the First Time | 1 |

Grade restrictions were identified in 30 responses. This requirement was explained in the following examples:

- "Students automatically only get 50% on the assignment with it being late. Every day after it is due they lose 10% additionally."
- "I accept late work from students, but reduce their grade for the late work by an automatic five points."

The third most identified circumstance was absence. Late work was accepted in instances where the student was absent from class in 24 responses. Two examples of when educators accepted late work because of absence are:

- "If a student is absent or if they have a question about how to complete an assignment, I will let them turn in the work later."
- "[Students] are allowed two days for every missed day of school up to five days."

Accepting late work was required by a school district in 18 responses. Agricultural educators identified having time and grade restrictions in 14 responses. Few participants (*n*=5) said late work was accepted at the teacher's discretion. Effort (*n*=3) and failing to complete an assignment (*n*=1) received the fewest mentions in the provided circumstances and requirements.

**Extra Credit**

Respondents (*n*=149) identified the frequency to which they offer extra credit opportunities to their students (Figure 3). Rare extra credit was offered by 46.3% of

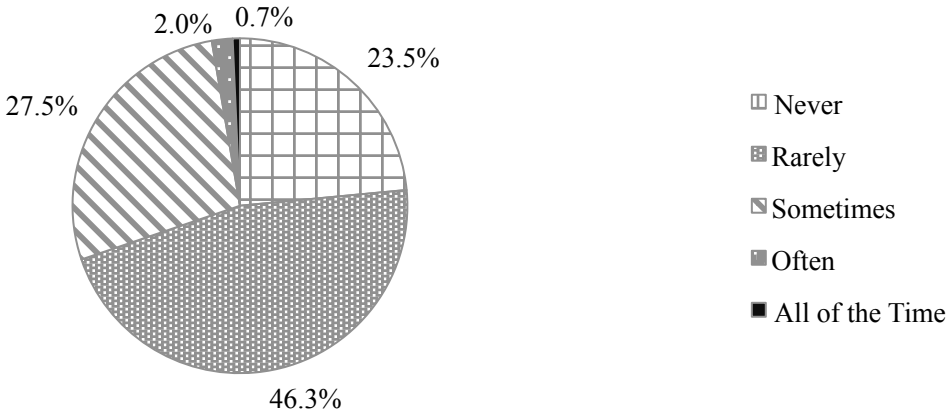



Figure 3. Distribution of extra credit opportunities offered by Iowa agricultural educators participating in a questionnaire on grading (*n*=149)

participating agricultural educators. Only one respondent said they offer extra credit all the time. Extra credit opportunities are not given in 23.5% of responding agricultural education classrooms while 27.5% of agricultural educators sometimes offer extra credit. Only 2% offer extra credit often.

The extra credit opportunities were explained by 103 respondents. Responses were sorted into eight categories. Categories are identified in Table 16 by arranging them in order from the highest to lowest number of responses within the 103 responses.

Additional content activities were mentioned most frequently in 49 responses. Examples of additional content activities included extra problems, supplemental worksheets, key term research, project-based activities, or additional presentations.

The second most common extra credit opportunity was an out-of-class opportunity (*n*=33). Respondents mentioned conducting an industry interview, attending a non-FFA event, or participating in agricultural literacy activities.

Extra credit opportunities for participating in FFA activities were identified in 11 responses. These opportunities included completing FFA Career Development Event (CDE) materials, involvement in FFA events, and participating in FFA Week activities.

Non-content items were found in nine responses. Examples of these extra credit opportunities are:

- "Wearing" FFA shirts on the days of (chapter) meetings."
- "After a particularly bad horticulture test, I offered five points extra credit to bring in a box of Kleenex for my room. I also offered five points of extra credit if their parents came to see me at parent-teacher conferences to encourage the student to encourage their parent to come in!"
- "It is for motivation to not use the restroom as frequently or ask to use the drinking fountain as much."

Chores and similar activities were found in few responses (*n*=4). Examples of activities in this extra credit opportunity category are:

- "Helping me in the classroom or with FFA activities."
- "Cleaning or performing a job to help other teachers."

- "Greenhouse/shop work."

Other extra credit opportunities included community service (*n*=2), Supervised Agricultural Experience (SAE) record books (*n*=2), and correcting answers on assignments and worksheets (*n*=2).

Table 16. Frequencies of extra credit opportunities offered by Iowa agricultural educators (*n*=103)

| Extra Credit Opportunity | *n* |
|---|---|
| Additional Content Activities | 49 |
| Out-of-class Activities | 33 |
| FFA Participation | 11 |
| Non-content Items | 9 |
| Chores | 4 |
| Community Service | 2 |
| SAE Recordbooks | 2 |
| Correcting Answers | 2 |

**Grading Practices**

Participants identified what grades reflect in their classroom (*n*=157) (Table 17). The most identified criterion for grades was knowledge (94.3%). Effort was the second highest criterion included in respondents' students' grades (86.0%) while responsibility was identified as the third most frequent (75.2%). Ranking students or grading performance in relationship to their peers was lowest at 43.4% but still identified by nearly half of respondents. Attendance also influenced grades in 49.0% of participants' classrooms.

Table 17. Frequencies and percentages of grading components agricultural educators include in student grades (*n*=157)

| Grading Criterion | Frequency | Percent |
|---|---|---|
| Knowledge | 148 | 94.3 |
| Effort | 135 | 86.0 |
| Responsibility | 118 | 75.2 |
| Attendance | 77 | 49.0 |
| Performance in relationship to their peers | 68 | 43.3 |

Table 18. Frequencies of terms used by agricultural educators to explain grading in their classrooms (*n*=131)

| Criterion | *n* |
|---|---|
| Student Behavior | 46 |
| Knowledge | 36 |
| Involvement/Participation | 32 |
| Understanding | 29 |
| Achievement | 25 |
| Performance | 17 |

Respondents provided further explanation of grades in their classroom through a written explanation (Table 18). Explanations (*n*=131) had six common categories. Student behavior was the most often identified in responses (*n*=46). These explanations evaluated responsibility, work ethic, effort, and completing work on time. Examples of these explanations that include student behavior include:

- "Grades portray their (student's) assignment scores, daily work, and responsibility every day."
- "The overall effort and responsibility of the student to complete the work assigned within the course which would include tests."
- "A grade would portray attitude, effort, knowledge, organization, and teamwork with others."

Student knowledge was the second most mentioned criterion in the grade explanations. Respondent examples that included knowledge in the grade explanation are:

- "Students are assessed on what they know and can do based on the concepts that are written into the curriculum. The grade is a reflection of how many times they were 'proficient' or 'exemplary'."
- "In the classroom, grades show the standards met and content learned."
- "(Grades) are a measurement of the level in which the student has learned."

Of the explanations, 32 mentioned student involvement and participation as factors included in a student's grade. Two examples of grade explanations that include participation are:

- "A lot of a student's grade in my class is based on participation. Not everyone is the best at every activity and I need to keep that in mind, which is why participation is more important."
- "The grade is the extent to which the student participated in class, respected the teacher and his/her property, and the student's peers."

Respondents also used terms like understanding (*n*=29), achievement (*n*=25), and performance (*n*=17) to explain how they provide grades.

## Professional Development

Professional development completed by educators ranged from school district in-services to AEA offered workshops and regional training sessions. A majority of professional development opportunities that participants completed was in their school districts.

### In-School Professional Development

Each school district offers their own professional development for educators. This section will look at professional development offered, the frequency of professional development, and the topics covered.

*Professional development offerings*

Participants identified the professional development opportunities offered within their school district (Table 19). Building level meetings was identified as being offered by 78.6% of the schools of participating agricultural educators. All-district meetings, including educators from kindergarten through grade 12, are held by 67.1% of participants' school districts. Mentoring is a professional development opportunity at 61.4% of participants'

schools. Content area teams (56.4%) and other teacher teams (47.9%) are also offered as professional development opportunities. Other professional development opportunities included professional learning communities (3.6%), PD360 (1%), and Authentic Intellectual Work (1%).

Table 19. Frequencies and percentages of professional development offered by school districts with agricultural educators participating in a questionnaire on grading (*n*=140)

| Professional Development Opportunity | Frequency | Percent |
|---|---|---|
| Building Level Meetings | 110 | 78.6 |
| All-District Meetings | 94 | 67.1 |
| Mentoring | 86 | 61.4 |
| Content-Area Teams | 79 | 56.4 |
| Other Teacher Teams | 67 | 47.9 |
| Other | 8 | 5.7 |

*Time devoted to professional development*

Agricultural educators identified the amount of time their school district devotes to professional development (Table 20). In a month, 38.6% of respondents participate in three to seven hours of professional development. Fewer participants (23.6%) attend seven to 10 hours of professional development. School districts offering more than 14 hours of professional development included 20.7% of participants. Only 7% of participants' school districts offered less than three hours of professional development in a month.

Table 20. Frequencies and percentages of time per month agricultural educators spend at professional development offered by school district (*n*=140)

| Professional Development Time | Frequency | Percent |
|---|---|---|
| Less than half a day (No more than 3 hours) | 10 | 7.1 |
| Between ½ and 1 day (3-7 hours) | 54 | 38.6 |
| One to 1 ½ days (7-10 hours) | 33 | 23.6 |
| 1 ½ to 2 days (10-14 hours) | 14 | 10.0 |
| More than 2 days (14+ hours) | 29 | 20.7 |

*Professional development concepts*

In the time allotted for monthly professional development, a school district will cover various topics. A majority of participants (74.3%) identified that one to two concepts were covered during monthly professional development. Fewer schools covered three to four topics (22.1%) while only 3.7% covered more than four topics.

Respondents provided write-in answers for the concepts covered during in-school professional development since the 2012-2013 school year. In the 105 responses, 16 common concepts were identified. These concepts are listed in Table 21.

The most common concepts covered within a school district professional development between 2012 and 2014 include Iowa Core (*n*=28), professional learning communities (*n*=25), and technology (*n*=25). Curriculum alignment was mentioned in 20 responses. Authentic Intellectual Work was identified in 13 responses while assessment and

Table 21. Terms and phrases of concepts covered during professional development within school districts of participating agricultural educators (*n*=105)

| Professional Development Concept | *n* |
|---|---|
| Iowa Core | 28 |
| Professional Learning Communities | 25 |
| Technology | 25 |
| Curriculum Alignment | 20 |
| Authentic Intellectual Work | 13 |
| Assessment | 12 |
| Instruction | 12 |
| Reading and Writing | 9 |
| Student Achievement | 9 |
| Standards-based Grading | 8 |
| Active Engagement | 5 |
| Data Assessment | 5 |
| Response to Intervention | 5 |
| Gradual Release | 4 |
| Competency-Based Education | 2 |
| STEM | 2 |

instruction were each mentioned 12 times in responses. Reading and writing concepts were mentioned in nine responses as was student achievement. Standards-based grading was identified in eight responses. Competency-based education and STEM had the fewest mentions in the 105 responses.

**External Professional Development**

Participating agricultural educators identified their involvement with professional development outside of their school district. These opportunities can be broken into agricultural education specific conferences and other professional development opportunities.

*Agricultural education professional development*

Of the 135 respondents, 83.7% attended the state agricultural educators' conference (Table 22). Nearly as many (78.5%) attended a district agricultural education in-service. Only 8.9% have attended a regional agricultural educators' conference while 13.3% have attended a national agricultural educators' conference. As a write in answer, 7.4% of respondents said they attended a CASE Institute.

Table 22. Frequencies and percentages of agricultural education professional development attended by agricultural educators (*n*=135)

| Professional Development Opportunity | Frequency | Percent |
|---|---|---|
| District Agricultural Education In-Service | 105 | 78.5 |
| State Agricultural Educators' Conference | 112 | 83.7 |
| Regional Agricultural Educators' Conference | 12 | 8.9 |
| National Agricultural Educators' Conference | 18 | 13.3 |
| Other | 12 | 8.9 |
| CASE Institute (10) | | |
| Area Professional Learning Community (1) | | |
| Master's Degree Courses (1) | | |

*Other professional development*

Other professional development opportunities attended by respondents are listed in Table 23. Conferences held by area education agencies were attended by 33.3% of respondents. Attending another school for a district site visit was another professional development opportunity that 17.0% of respondents have taken part in.

Table 23. Frequencies and percentages of professional development opportunities attended by agricultural educators outside of the school district (*n*=135)

| Professional Development Opportunity | Frequency | Percent |
|---|---|---|
| AEA Conference | 45 | 33.3 |
| Other School District Site Visit | 23 | 17.0 |
| Other | 3 | 2.2 |
| Mennonite Educator Conference (1) | | |
| Technology in Classrooms (1) | | |
| Iowa 1:1 Conference (1) | | |

*Assessment training*

Of the total respondents (*n*=143), 37.1% have received training on assessments. A majority (73.8%) received training through their school district's professional development. Other respondents who indicated they had completed formal training on assessment had completed graduate classes covering assessment (14.3%), completed training or workshops offered by area education agencies (9.5%), participated in optional trainings offered by their school district (7.1%), or completed a summer training (4.8%).

## Standards-Based Grading

This section includes finding related to participants' knowledge about standards-based grading (SBG) as well as standards-based grading practices.

**Standards-Based Grading Knowledge**

Agricultural educators were asked to define standards-based grading (SBG) as well as identify their agreement with statements related to grading in a SBG system.

*Standards-based grading defined*

When asked to define SBG, 96 responses were accumulated. These responses were used to determine agricultural educators' knowledge of SBG. SBG was viewed as a check-off system or a dichotomous yes-no system where students either know the standard or they don't (32.3%) while eight participants (8.3%) admitted to not knowing how to define SBG. Fewer participants had an understanding of SBG: eight respondents (8.3%) could provide a solid definition of SBG. A majority (51.0%) had some understanding of SBG but would need more information to implement it into their classroom.

Respondents also identified their knowledge of statements directly related to a SBG system (Table 24). Respondents believed that academic achievement is the main grading criteria in a SBG system ($M$=3.92, $SD$=0.84). Participants believed that effort should somewhat impact a student's grade within a SBG system ($M$=3.64, $SD$=1.06). Respondents also believed that student behavior should have less of an impact on grades ($M$=2.72, $SD$=1.21).

Table 24. Distribution of means and standard deviations of agricultural educators beliefs on grading criteria in a SBG system

| Grading Criteria | *n* | Mean | *SD* |
|---|---|---|---|
| Grades should be based on academic achievement. | 117 | 3.92 | 0.84 |
| Grades should be based on student effort. | 122 | 3.64 | 1.06 |
| Grades should be based on student behavior. | 119 | 2.72 | 1.21 |

Scale: 1 = Not at All, 3 = Somewhat, 5 = To a Great Extent

Participants responded to a set of questions regarding what they believed to be the purpose of grades in a SBG system (Table 25). Participants believed that grades are

primarily used as feedback about student learning (*M*=4.25, *SD*=0.73). Participants also indicated strongly that grades are used to make administrative decisions (*M*=3.90, *SD*=0.75). In SBG, participants believe that grades should provide students with guidance (*M*=3.77, *SD*=0.92) and used to plan instruction (*M*=3.62, *SD*=1.05). Participants believed that in a SBG system effort is still used somewhat to determine students' grades (*M*=3.47, *SD*=1.03).

Table 25. Means and standard deviations of agricultural educators' beliefs of grade purposes in a SBG system

| Grading Statement in SBG | *n* | Mean | *SD* |
|---|---|---|---|
| Grades should be used to provide students and parents with feedback about student learning. | 122 | 4.25 | 0.73 |
| Grades should be used to make administrative decision such as student's progress to the next course level, class rank, credits earned and so on. | 123 | 3.90 | 0.75 |
| Grades should be used to provide students with guidance relative to courses they should take, occupations they should consider and so on. | 120 | 3.77 | 0.92 |
| Grades should be used to plan instruction. | 121 | 3.62 | 1.05 |
| Grades should be used to motivate students. | 121 | 3.47 | 1.03 |

Scale: 1 = Not at All, 3 = Somewhat, 5 = To a Great Extent

**Standard Identification**

Participants were asked to identify their current use of learning standards. Of the total respondents (*n*=142), 54.9% have standards identified for the all of the courses they

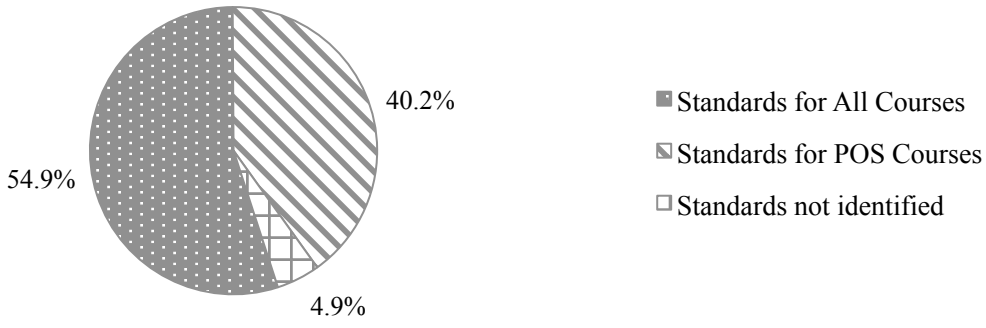



Figure 4. Distribution of standards identified for agricultural education courses (*n*=112)

teach (Figure 4). Another 40.1% have standards identified for those courses in their CTE Program of Study. Only 4.9% do not have any standards identified for any of their courses.

*Agricultural education standards used*

Participants identified which standard set they used within their courses (Figure 5). A majority of participants (61.8%) align their course standards with the National Agriculture, Food and Natural Resource standards (2009). Of the 136 respondents, 25.0% use the Iowa Agricultural Education Standards and Benchmarks (1999) while the remaining educators (13.2%) use locally-developed standards.

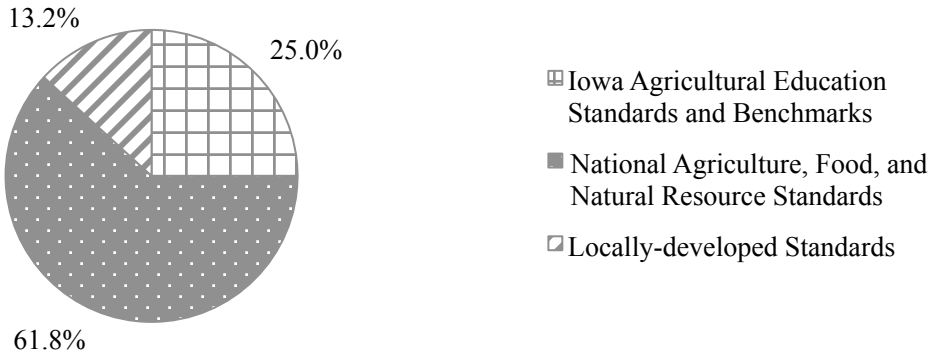



Figure 5. Distribution of standard sets used by agricultural education programs (*n*=136)

*Additional standards used*

Of those agricultural educators who have identified standards for their courses, 62.5% have integrated other non-agricultural education standards into their courses. Non-agricultural education standards used in agricultural education programs are found in Table 26. Iowa Core Curriculum standards are used by 80.0% of respondents (*n*=85). National science education standards are incorporated by 60.0% of respondents and national math standards are used by 50.6% of respondents. National Standards for English and Language

Table 26. Frequencies and percentages of non-agricultural education standards used by agricultural education programs (*n*=85)

| Standard Set | Frequency | Percent |
|---|---|---|
| Iowa Core Curriculum | 68 | 80.0 |
| National Science Education Standards | 51 | 60.0 |
| National Math Education Standards | 43 | 50.6 |
| National Standards for English Language Arts | 38 | 44.7 |
| National Social Studies Standards | 17 | 20.0 |

Arts (44.7%) and social studies (20.0%) standards are incorporated less by agricultural educators.

*Number of standards per course*

Agricultural educators identified the number of standards covered in one course during a semester. The fewest number of standards covered in one semester for a course was four while the most was 100 content standards (Figure 6). Thirty-eight respondents (28.4%) said they cover less than 10 content standards in one semester while 26.9% cover between 11 and 20 standards in one course during a semester. Only 14 respondents (10.4%) cover 30 to

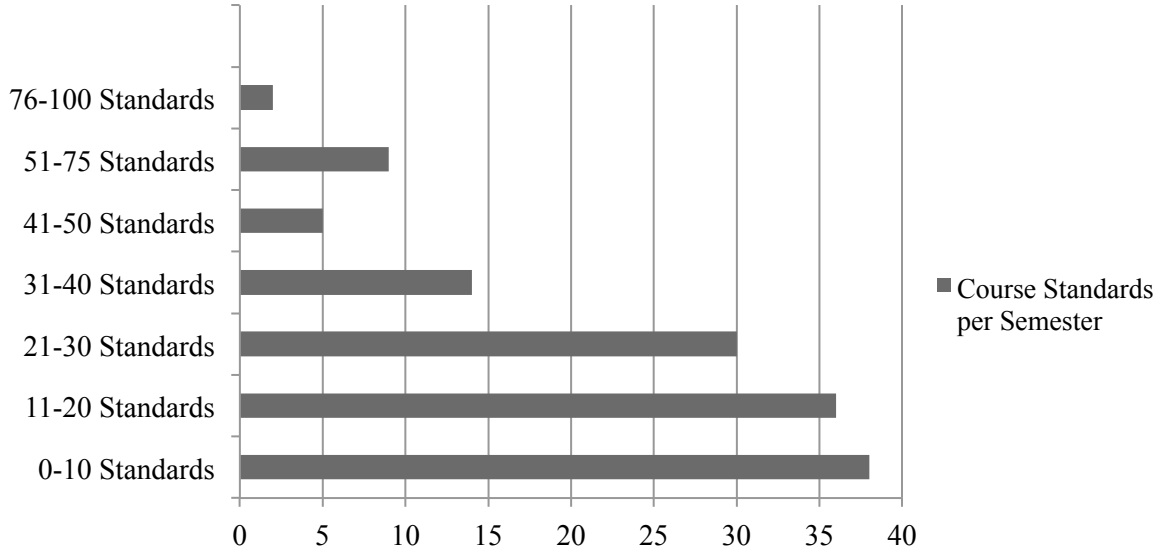



Figure 6. Distribution of the number of standards covered in one course during a semester by agricultural educators (*n*=134)

40 content standards during a semester in one course. Few respondents (6.7%) said they cover 50 to 75 content standards. During a semester, only five respondents (3.7%) and two respondents (1.5%) identified covering 40 to 50 and 75 to 100 content standards, respectively.

*Communicating learning standards*

Participating agricultural educators that have identified course standards use a variety of mediums to communicate the course standards (Table 27). Most agricultural educators (67.6%) have standards saved as an electronic document or have them in a binder. Of the respondents, 41.2% present standards to their students at the beginning of a unit or activity. Fewer agricultural educators (26.5%) list standards on the course syllabus while 30 respondents (22.1%) utilize a course website for content standard communication. Only 8.8% of respondents said they have content standards visibly posted in the classroom on a poster or bulletin board.

Table 27. Frequencies and percentages of communicating standards with students, parents, and administration by agricultural educators (*n*=136)

| Standard Communication | Frequency | Percent |
|---|---|---|
| Standards are available if someone asked to see them (i.e. binder, electronic file) | 92 | 67.6 |
| Standards are available at the beginning of a unit or activity. | 56 | 41.2 |
| Standards are listed on course syllabi. | 36 | 26.5 |
| Standards are available online (i.e. course website) | 30 | 22.1 |
| Standards are visibly posted in the classroom (i.e. poster) | 12 | 8.8 |

## Standards-Based Grading Implementation

Respondents identified the level of SBG implementation within their school district. SBG is not being implemented in 35.9% of respondents' school districts while others have SBG implemented on various levels. Discussions about SBG are happening in the schools of 23.6% of respondents. SBG pilots are taking place in the schools of 32.1% of respondents.

Only 3.8% of respondents identified SBG being fully implemented at a building level while 4.6% said SBG is implemented throughout their entire district.

**Extent of Standards-Based Grading Implementation**

Respondents indicated the grade level that has implemented SBG in their school district (Table 28). Of the 67 respondents, 85.1% said SBG is being implemented or used at the high school level. Respondents' school districts have implemented or were using SBG at the elementary (47.8%) and middle schools (49.3%).

Table 28. Frequencies and percentages of building levels using SBG of school districts with agricultural educators that participated in a questionnaire on grading (*n*=67)

| Building Level Using SBG | Frequency | Percent |
|---|---|---|
| Elementary | 32 | 47.8 |
| Middle School | 33 | 49.3 |
| High School | 57 | 85.1 |

**Standards-Based Grading in Agricultural Education**

Although 85.1% indicated that SBG is being used to some extent at the high school level, only 27.1% of participants (*n*=85) are using SBG in their courses. These respondents were asked a series of questions regarding their implementation of SBG, successes, frustrations as well as support provided and still needed.

*Implementation in agricultural education*

SBG for agricultural educators was either an individual choice or the result of an administrative choice. For 42.9% of respondents, the choice to use SBG was an individual decision. Some responses included:

- "After discussing with our building principal, a science teacher and I began to implement for the 2012-2013 school year."
- "I took it upon myself to change the grading procedure in my one classroom."

- "So far, it has been experimental. I have tried to implement in my courses but have a steep learning curve to find out what works and is manageable."

The remaining 57.1% of respondents were required to make the change to a SBG system by an administrative push. Some respondents described the experience as follows:

- "The superintendent introduced it as our pilot attempt. Each year a different area is placed on cycle to begin implementation. First year is curriculum development, second year is curriculum verification, third year is resource selection and development of assessments, fourth year is implementation and validation of new assessments."

- "(SBG) started out at elementary and middle schools. When freshmen move to high school this year, (SBG was) implemented with them. Next year all courses will be required to implement."

- "We had training and then we started the process through PowerSchool."

*Standards-based grading successes*

Participants were asked to define successes they have had since implementing SBG. Common themes within answers included student learning, parent support, and curriculum design and implementation ease.

Improved student learning was the most common theme in respondents' answers. Seven respondents explained an improvement in the quality of student work. Respondents also explained the higher emphasis on student learning because students understand what is required for them to succeed.

Respondents also described benefits toward curriculum. Two respondents described curriculum alignment and the ease of moving to SBG with the help of CASE curriculum. Others explained how SBG allows them to better prepare lessons and adjust curriculum to meet students' needs.

Finally, respondents also mentioned the better feedback and clear learning goals has gained parent support for SBG.

*Standards-based grading frustrations*

Respondents have also shared their frustrations they have had during SBG implementation. Of the 12 responses, time was the most often mentioned frustration. Participants expressed how the change has taken a lot of time to align curriculum and make the change in gradebooks, especially if administration requires converting back to a traditional overall letter grade.

Misconceptions and perceptions by parents, other teachers, and administration were also cited by respondents as a frustration. Much communication is required with other teachers and parents reports participants.

Respondents are still unsure of how to fully implement SBG in their classroom. One identified a lack of resources to implement in an agricultural education classroom makes it difficult to understand fully. Few participants struggled managing time to develop reassessments and reassessing students or determining the length of time a student should be given to master a standard.

*Standards-based grading support*

Respondents have received an array of support from administrators regarding their implementation of SBG. Full support was provided to those agricultural educators whose entire school changed to a SBG system while others have received basic support from administration. These respondents were provided training from administration or basic support to try it in their agricultural education classroom. Some respondents mentioned a

book study led by administrators, time during professional development to do some curriculum development, and spending time during in-service devoted to SBG training.

Some respondents explained their administrators have been supportive in implementing SBG and developing own assessments as long as grades can still be converted to the school's required grading scale. Few respondents identified administrative support as limited to approval to implement in their classroom.

Since implemented, respondents still identified more support is needed. The most identified response was more time to develop curriculum, materials, and understanding of SBG. One identified the lack of examples in a high school setting and in CTE courses, while another respondent said it would be helpful to sit down with a group at agricultural educators and work through a unit or course using SBG.

Respondents also said support in communicating SBG is needed. Respondents described needing a clear understanding and approach to be communicated between administration, teachers, students, and parents.

# CHAPTER 5. DISCUSSION

The purpose of this study was to determine the perceptions of high school agricultural educators in Iowa regarding current grading practices and standards-based grading (SBG). This chapter presents a discussion of this study based on the following objectives:

1. Explore agricultural educators' current grading practices
2. Explain what agricultural educators know about SBG
3. Define the local driving force of the SBG movement
4. Determine agricultural educators' attitudes towards SBG
5. Identify current grades-based professional development activities and opportunities for future professional development activities.

## Current Grading Practices

The findings about current grading practices of agricultural educators closely align to the literature reviewed in Chapter 2. The findings revealed grading practices of agricultural educators vary greatly from teacher to teacher which align with the literature that grades are "an amalgam of homework, classroom behavior, quizzes, projects, and tests" (Fisher et al., 2011, p. 46). Types of assessments and learning approaches used by agricultural educators to develop a student's grade are one of these varying practices. A majority of agricultural educators use projects and hands-on assessments more often than oral exams or portfolios. However all assessments were identified as being used more than eight times per semester by at least one agricultural educator.

Results revealed agricultural educators use a variety of learning approaches within their classrooms that impact a student's grade. Literature (O'Connor, 2009; Brookhart, 2011) indicated an emphasis on performance activities and an increase in authentic

assessments both of which are used in career and technical education (CTE). Participating agricultural educators justified this and indicated using hands-on activities and real-life problems most often in their classrooms when compared to lecture and standardized tests. Because of their experience, administrators should use agricultural educators and other CTE professionals to help other teachers develop more authentic activities and assessments or coordinate team teaching opportunities that merges agricultural concepts with core areas and evaluates student knowledge using authentic assessments.

Results also indicated agricultural educators believe non-academic factors including effort should be large part of a grade. Other grading criteria where variances were found were student behavior and participation. Agricultural educators most often mentioned student behavior when explaining grading to a student or parent. Combined, parents and students would receive a grade explanation that would encompass student behavior, knowledge, and participation. These findings indicate that grades assigned by agricultural educations in Iowa are similar to those found in literature (Wormeli, 2006; Guskey, 2009; O'Connor, 2011) that provide an unclear picture of student learning and knowledge.

However, when asked to define grades, effort was rarely mentioned in responses but 86.7% of agricultural educators believe effort should be included. Using definitions of grades provided by respondents, an overall definition can be formed. Based on responses, agricultural educators define grades as a reflection of student learning and knowledge that is a required part of education. This definition is based on the top four terms and phrases mentioned by agricultural educators while effort was the fifth most mentioned term. For the 138 total definitions, 24 terms and phrases were used to classify definitions. More than half of these terms showed up less than six times. To hold programs accountable and to attain

statewide data on agricultural education programs, agricultural educators as a group need to determine what a grade includes and a way for it to be communicated.

Defining grades for agricultural education would be easier if grades in agricultural education had a clear purpose. Results showed no outlying purpose for grades and most purposes were neither strongly agreed nor disagreed with. Motivation was one purpose that agricultural educators agreed with that researchers disagree with. Points and percentages have become a reward to students rather than learning and mastering a skill. Students do not ask what they did wrong or how they can improve but what extra credit can they do to get points back. Grades should be used as feedback, and many agricultural educators agree with this purpose, but the feedback needs to be a clear indicator of what students know, not how many points they can accumulate because of extra credit.

**Standards-Based Grading Knowledge and Attitudes**

Few agricultural educators are using SBG in their classroom. When defining SBG, a majority of respondents were unable to provide a definition that closely aligned with definitions by O'Connor (2009) or Townsley (2013). Only eight respondents provided a definition indicating their knowledge of SBG was enough to implement SBG in a classroom.

Agricultural educators believe that in an SBG system effort and behavior should be included as part of a student's grade. SBG eliminates non-academic content from a student's grade according to the research (Guskey, 2013; O'Connor 2011; Wormeli, 2006). While educators' beliefs varied from SBG research on the effect of effort and behavior on grades, participants did place a higher value on the purpose of grades as a form of feedback in a SBG system versus in a traditional system. In order to make the transition to an SBG system,

educators will need to make adjustments to their grading philosophy and purpose of grading to provide an accurate image of student knowledge.

When comparing results from questions about grades in a traditional system to those in an SBG system, the results were consistent. Agricultural educators utilize a variety of assessments and they have standards identified for nearly all of their classes. But from the results, this is a question as to whether or not SBG was misinterpreted as having standards identified, assessing students, and assigning them a traditional percentage or letter grade.

While the knowledge of SBG is limited for agricultural educators, many are using some SBG practices or modifications. Agricultural educators have identified standards for most of their courses. In addition to agricultural education standards, educators have identified standards in other areas. Most often used by agricultural educators in addition to agricultural education standards were math and science standards along with the Iowa Core. Researchers including Marzano (2006) and Wormeli (2014) both indicate an overabundance of standards to be covered in a course that would require 71 percent more instructional time than is now available (Marzano, 2006). A majority of agricultural educators (55.3%) have limited the number of standards covered in each course to less than 20, which aligns with Marzano's (2006) recommendation of 15 to 20 standards per course.

Communicating standards with students, parents, and administrators has value in SBG. There may be a lack of transparency in communicating standards within agricultural education. Many agricultural educators currently keep their standards in an electronic file or binder. Another adjustment educators would have to make is making learning standards more accessible as SBG utilizes clearly articulated learning standards and an emphasis is placed on communicating these standards with students and parents (Vogel, 2010). Through

communication of standards, students know specifically what they will be graded on with a single letter grade per learning goal or standard (O'Connor, 2005; Townsley, 2013).

In addition to have clear learning standards, a SBG system allows students to retest or turn in late work for full credit while extra credit is eliminated from student grades. Agricultural educators offer retesting and retaking assessments but they are usually offered with restrictions. Students must retake within a given time period or can only earn partial credit. Accepting late work has restrictions similar to retesting. Wormeli explained in a presentation to the Standards-based Grading and Reporting Committee at Ankeny Community Schools on January 29, 2014 that by not allowing to retest or redo work, a student is denied the growth mindset needed for maturation and says to the student the assignment has no value, "it's okay if you don't do this work", and "it's okay if you don't learn this concept or skill". Because SBG reports student learning based on specific standards, assessments can be retaken at any time as an indicator of student knowledge while student work is practice for the student to build their understanding of a standard. Only seven participants allowed retakes without restrictions while 12 accepted late work without an excuse or grade penalty.

Within SBG, educators will need to emphasize that it is okay to make mistakes and that extra practice is meant to help a student master a standard. One of the most frequently asked questions in SBG literature is about student's trying to succeed if they know they can reassess (Wormeli, 2006; Ingebrand,2014) . SBG is not just a philosophy change for teachers but affects the student philosophy too. SBG allows time to relearn the material and students learn that it takes less work to do it right the first time. Assessments are also presented in different formats to meet the needs of every learner.

Extra credit is not offered in an SBG system and 23.5% of agricultural educators don't offer extra credit opportunities in their classroom. Those that did offer extra credit, many provided students with additional content activities. Others offered extra credit for non-academic items such as bringing in an item for the classroom or limiting trips to the bathroom during class. FFA participation was also offered for extra credit by 11 agricultural educators. Grades become distorted and don't show what the student knows when extra credit is offered (O'Connor, 2011; Wormeli, 2006).

**Standards-Based Grading Driving Force**

Over 85% of agricultural educators indicated that SBG was being implemented or used at the high school level. However, only 27.1% of respondents are using SBG in their agricultural education classroom. The local driving force for implementing SBG was split between teacher initiative and an administrative push.

While 57.1% (*n*=8) made the change to SBG because of the administration, only three indicated that SBG was a topic of professional development. The change to SBG is time consuming and participants indicated needing more time to align curriculum and more resources specific to the secondary level and content area.

Six teachers who indicated using SBG in their classroom surveyed took the initiative to change to SBG. Their concerns after making the change are similar to those seeing a push to change to SBG from administration. Time was still the biggest concern. These teachers are still taking time to align curriculum as well as having to translate their SBG grade back to a traditional grade. Another concern of those teachers having implemented SBG on their own was the additional communication needed with students, parents, and administrators. As a newer grading practice, teachers using SBG have to explain SBG to students, parents,

other teachers, and administrators. Most often times this involves clarifying misconceptions and perceptions. Agricultural educators have also voiced concerns with the process of implementation. There is a lack of research and resources for implementing SBG into an agricultural education classroom. This becomes even more difficult in those schools that have only one agricultural educator. The collaboration time with other agricultural educators is then limited to the one fall agricultural education district in-service or state agricultural educator conference in June.

## Professional Development

A majority of participants (67.2%, *n*=140) spend between three and 10 hours on professional development each month. During this time, the concepts discussed during professional development varied from school district to school district (*n*=105). Iowa Core (*n*=28) and curriculum alignment (*n*=20) were most often mentioned along with professional learning communities (*n*=25) and technology (*n*=25).

While Iowa Core and curriculum alignment were predominant concepts, some school districts have talked about SBG and SBG concepts. Curriculum alignment and unpacking is one of the first steps to implementing SBG after defining the purpose of grades (Wormeli, 2013). Assessment was discussed during professional development according to 12 respondents while eight indicated spending time on SBG training.

Responses about professional development concepts were inconsistent with 16 total concepts mentioned. The most common concept was Iowa Core and only 26.7% of respondents indicated discussing it during professional development. The Iowa Core is supposed provides academic expectations for all K-12 students in Iowa (Iowa Core, 2012) but less than half of schools have focused on it during professional development between

2012-2014. While professional development is specific to each school district, the question becomes should it be more consistent across the state with educators discussing similar topics at similar times.

Outside of the school district, agricultural educators take advantage of district and state agricultural education professional development opportunities. A majority (83.7%) attend the state agricultural educators' conference held in conjunction with the Iowa Association of Agricultural Educators conference. Fewer attend a district agricultural education in-service (78.5%) but still more than three-quarters take advantage of the opportunity to collaborate and work with other agricultural educators.

Results also revealed few agricultural educators have received very little formal training on assessment since obtaining their teaching license. Assessment training was most often found to take place in school district professional development. Literature states that assessments should be well-written, well chosen, and free from bias or distortion (O'Connor, 2009). Accurate grades become more meaningful through quality assessment. However, agricultural educators may not have the training necessary to develop and implement quality assessment. Further information is needed to determine if agricultural educators develop and implement quality assessments that have clear and appropriate learning targets or if they are developed and implemented because an assessment is easy to distribute and grade.

# CHAPTER 6. CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

The purpose of this study was to determine the perceptions of high school agricultural educators in Iowa regarding current grading practices and standards-based grading (SBG). The objectives of this study were to:

1. Explore agricultural educators' current grading practices
2. Explain what agricultural educators know about SBG
3. Define the local driving force of the SBG movement
4. Determine agricultural educators' attitudes towards SBG
5. Identify current grades-based professional development activities and opportunities for future professional development activities.

The study utilized a descriptive survey research design. The accessible population consisted of 236 agricultural educators in Iowa secondary agricultural education programs. Qualtrics, an online survey software (2014) was used to create the instrument and collect data. The survey consisted of questions related to the study's objectives. Content and face validity was determined using the pre-testing approach developed by Dillman et al. prior to implementing the survey (2009). Cronbach's Alpha coefficients were 0.683 for the traditional grading beliefs and 0.608 for the standards-based grading knowledge section. These coefficients reveal the instrument was adequate and reliable for the study.

The instrument was sent electronically to 236 agricultural educators. Of those, 11 emails did not go through to the recipients. A total of 157 responses were recorded for a response rate of 69.8%. Data was provided from Qualtrics and downloaded as an Excel spreadsheet. Qualtrics provided descriptive statistics including means, standard deviations, frequencies and percentages. These were used to analyze the data.

## Conclusions

The following conclusions were made based on the findings as they relate to the knowledge and perceptions of Iowa secondary agricultural educators and the review of grading literature.

1. The many terms used to describe grades and the purpose of grades makes it difficult to provide a single definition for agricultural educators.
2. Results revealed consistency with agricultural educators' beliefs about grading and grading practices.
3. According to literature and the findings, agricultural educators do include non-academic components in students' grades.
4. Respondents reported using both formative and summative assessments in their classroom. They indicated using individual and group projects as well as written exams to assess student knowledge.
5. Most professional development attended by agricultural educators takes place within the school district. Outside of the school district, agricultural educators use state agricultural educators' conference for professional development.
6. Within professional development offered at the school district, there is much inconsistency of concepts covered between districts.
7. Results showed agricultural educators are familiar with learning standards and have them indicated for at least those courses within their program of study.
8. Based on grading literature and results, respondents use some SBG practices such as retesting to some extent or with some restrictions.

9. The SBG definitions provided by some respondents in this study align closely with those in grading literature and indicate a few agricultural educators understand SBG to an extent that they can fully use it in their classroom.
10. The biggest obstacle to fully implement SBG is time and understanding as indicated by those who are implementing or have implemented SBG.

## Recommendations

The following recommendations were made based on the findings of this study:

1. As agricultural educators are developing their Programs of Study (POS), take time to learn about SBG and how to implement it in their classrooms. By understanding SBG and how it reports a more accurate measurement of student knowledge, agricultural educators can better develop standards for their POS.
2. Since agricultural education programs vary between school districts, agricultural educators should create a shared purpose of agricultural education and grading in agricultural education courses.
3. To define learning standards and competencies to help measure standards for agricultural education. The Iowa agricultural education standards and benchmarks while National Agriculture, Food, and Natural Resource Standards are listed as elements and concepts.
4. To define standards to use in agricultural education. Agricultural educators are using three different standard sets. By defining one set of standards, agricultural educators can collaborate more effectively.

5. To provide agricultural educators the opportunity to learn about and collaborate on SBG units/courses at state agricultural educator conference. Training and collaboration should:
    a. Explain how SBG can accurately portray student knowledge.
    b. Discuss how to communicate SBG with students, parents, and administration.
    c. Introduce SBG grading practices including retesting, feedback, and formative assessment.
    d. Develop lessons including activities and assessments following a SBG approach.
    e. Discuss an implementation plan in an agricultural education program.
    f. Discuss successes, frustrations, and concerns with SBG in agricultural education.
6. To construct a professional learning community for those agricultural educators implementing or have implemented SBG in their classroom.

## Future Research

The following recommendations for further research are offered based on the findings of this study:

1. A similar study should be conducted about agricultural educator perceptions of grading practices and SBG in other states especially those that have set curriculum standards.
2. Other content area teachers such as math, English, and science should be surveyed to gain their perceptions about grading practices and content standards. This will help gain an understanding of the total school needs for the transition to SBG.

3. There are no studies about SBG in agricultural education. A study should be conducted on the implementation of SBG in an agricultural education classroom and/or other career and technical education content area.
4. A study should be conducted to determine the effectiveness of SBG on student learning in agricultural education. Student grades could be compared to past student scores in a traditional system as well as student scores on standardized tests such as the ACT or Iowa Tests of Educational Development.
5. Studies about SBG should refer to SBG as standards-based grading and reporting (SBGR) as there may be some confusion between indirectly evaluating students on course standards through a traditional grading approach that includes daily work, participation, etc. and directly evaluating students' knowledge on course standards through SBG practices.

## Implications and Educational Significance

The findings from this study have implications for grading in agricultural education classrooms. To fully implement SBG in agricultural education classrooms, many educators will need to reevaluate the purpose of grading and make their grading policy reflect their purpose. For some, this would mean collaborating as a school district to make the change.

Before implementing, agricultural educators need training on SBG and time to collaborate with other educators. As many schools only have one agricultural educator, it will be important to use time effectively when the opportunity to work with other agricultural educators presents itself. In addition, implementing SBG is not just a change and learning process for teachers. Teachers and administrators will need to focus on including students and parents in the implementation process. By communicating at every level of

implementation, misconceptions and issues can be eliminated reducing negative feedback from teachers, administrators, students, and parents. Once implemented, communication should continue through the distribution of clear learning objectives and proficiency levels associated with each.

Agricultural educators have been successful in implementing educational reforms such as technical skill attainment with the Perkins Act. Agricultural educators already use hands-on activities and real-life problems within their classrooms which has been a recent focus with authentic learning and assessment. Their background knowledge of learning standards and learning approaches will help them lead the SBG movement within their schools through proper training and adequate resources including administrator support.

# APPENDIX A. SURVEY INSTRUMENT

**Agricultural Educators' Perceptions and Knowledge of Standards-Based Grading**

Thank you for completing the Agricultural Educators' Perceptions and Knowledge of Standards-Based Grading survey.

The purpose of this survey is to determine how agricultural educators perceive Standards-Based Grading as well as look at current grading practices.
This survey looks to:
1. Explain agricultural educators' current grading practices
2. Explain what agricultural educators know about Standards-Based Grading
3. Define the local driving force of the Standards-Based Grading movement
4. Determine agricultural educators' attitudes towards Standards-Based Grading
5. Identify current grades-based professional development activities and opportunities for future professional development activities.

For this survey, we will define standards-based grading measuring students' proficiency levels using well-defined course objectives (Tomlinson & McTighe, 2006).

The survey should take no more than 20 minutes to complete. We will not connect your personal identity with your comments in any written or verbal report. Participation in this survey likely has no more than minimal risk, is voluntary, and you may discontinue participation at any time without penalty.

If you have questions about this survey, contact Jenny Lichty at jlichty@iastate.edu.

In your classes, what does a student's grade reflect?
*Please check all that apply.*

- ☐ Attendance
- ☐ Effort
- ☐ Responsibility
- ☐ Knowledge
- ☐ Performance in relationship to their peers

For each of the following, select the extent to which you agree with each statement.

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| Grades should reflect achievement of intended learning outcomes. | ○ | ○ | ○ | ○ |
| Students and parents are the primary audiences for the message conveyed in grades. | ○ | ○ | ○ | ○ |
| Grades should reflect a particular student's individual achievement. | ○ | ○ | ○ | ○ |
| Grading policies should be set up to support motivation to learn. | ○ | ○ | ○ | ○ |
| Standards are taught as part of the curriculum. | ○ | ○ | ○ | ○ |
| Standards are the curriculum. | ○ | ○ | ○ | ○ |
| Core academic standards should be included in agricultural education student grades. | ○ | ○ | ○ | ○ |
| Standards-Based Grading in Agricultural Education helps improve student knowledge in other content areas. | ○ | ○ | ○ | ○ |

Please rank (by dragging and dropping) the following learning approaches based on the frequency of use in your agricultural education classroom. 1 is most frequently used.

- Textbooks
- Real-Life Problems
- Hands-On Group Activities
- Lecture
- Team-Based Learning
- Standardized Tests
- Hands-On Individual Activities

In your agricultural education classroom, what types of assessments do you use? *Please select one.*

- ◯ Formative Assessments - assessments that monitor student learning to provide feedback to help improve teaching and learning.
- ◯ Summative Assessments - assessments to evaluate student learning without intentions of re-teaching or furthering learning afterwards
- ◯ Both but more formative assessment
- ◯ Both but more summative assessment

Do you allow your students the opportunity to retest or retake if they did not understand the material?

- ◯ Yes
- ◯ No

Under what circumstances do you offer a retest or retake?

Identify the frequency that you currently offer extra credit to students.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ All of the Time

What types of extra credit do you offer?

Do you allow your students to turn in late work?

- ◯ Yes
- ◯ No

When do you allow your students to turn in late work?

Define what "grades" are to you as an educator.

Speaking as you would to a parent or student, please explain how a student's performance in your class will be assessed and evaluated? What does a grade portray?

When grading your students, what is important to include?
*Please check all that apply.*

- ☐ Prior Knowledge
- ☐ Current Knowledge
- ☐ Attendance
- ☐ Effort
- ☐ Responsibility

Do you have a list of standards identified for each course offered?
*Please select one.*

- ◯ Yes, standards are identified for all courses.
- ◯ Yes, standards are identified for those classes listed in my Program of Study.
- ◯ Yes, standards are identified for college classes only.
- ◯ No, standards are not identified.

The agricultural education standards identified for agricultural education courses align with:
*Please select one.*

- ◯ Iowa Agricultural Education Standards and Benchmarks (1999)
- ◯ National Agriculture, Food, and Natural Resource Standards (2009)
- ◯ Locally-developed standards

Do you use any non-agricultural education standards (i.e. math, science, English, etc.)?

- ◯ Yes
- ◯ No

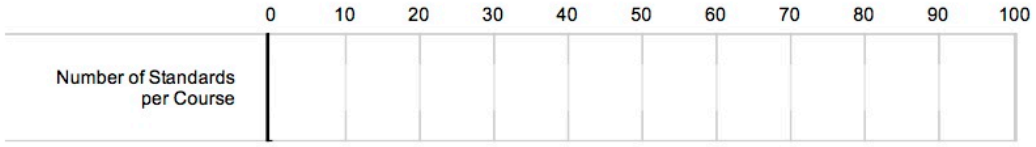
What other content standards do you use?
*Please check all that are identified in your agricultural education course standards.*

- ☐ National Science Education Standards
- ☐ National Math Education Standards
- ☐ National Standards for English Language Arts
- ☐ National Social Studies Standards
- ☐ Iowa Core Curriculum

How do you communicate content standards in your agricultural education classroom?
*Please select all that apply.*

- ☐ Standards are listed on course syllabi.
- ☐ Standards are visibly posted in the classroom (i.e. poster)
- ☐ Standards are available at the beginning of a unit or activity.
- ☐ Standards are available online (i.e. course website)
- ☐ Standards are available if someone asked to see them (i.e. binder, electronic file)

In a semester, how many standards are covered on average in one of your agricultural education courses?
*Please slide bar to the correct number.*




Since obtaining your teaching license, have you had any formal training on classroom grading and assessment?

- ◯ Yes
- ◯ No

Please explain any formal training you have had on classroom grading and assessment.

How would you define student 'assessment' of learning?

For each of the following learning tools, identify the frequency that you use each assessment in your agricultural education classroom.

| | Never | Less than Once a Semester | 1-3 Times per Semester | 4-7 Times per Semester | 8+ Times per Semester |
|---|---|---|---|---|---|
| Portfolios | ○ | ○ | ○ | ○ | ○ |
| Written Exams | ○ | ○ | ○ | ○ | ○ |
| Rubrics | ○ | ○ | ○ | ○ | ○ |
| Student Self-Assessment | ○ | ○ | ○ | ○ | ○ |
| Oral Exams | ○ | ○ | ○ | ○ | ○ |
| Group Projects | ○ | ○ | ○ | ○ | ○ |
| Individual Projects | ○ | ○ | ○ | ○ | ○ |
| Written Papers | ○ | ○ | ○ | ○ | ○ |
| Standardized Exams | ○ | ○ | ○ | ○ | ○ |
| Hands-On Assessments | ○ | ○ | ○ | ○ | ○ |
| Other | ○ | ○ | ○ | ○ | ○ |

What types of professional development does your school offer?

- ☐ Mentoring
- ☐ Content-Area Teams
- ☐ Other Teacher Teams
- ☐ Building Level Meetings
- ☐ All-District Meetings
- ☐ Other

On average in your school, how much time per month is devoted to professional development during the academic year?

- ○ Less than half a day (No more than 3 hours)
- ○ Between 1/2 and 1 days (3-7 hours)
- ○ One to 1 1/2 days (7-10 hours)
- ○ 1 1/2 to 2 days (10-14 hours)
- ○ More than 2 days (14+ hours)

In the time devoted to professional development at your school, how many concepts or topics are covered per month?

- ◯ 1-2 concepts
- ◯ 3-4 concepts
- ◯ 4-5 concepts
- ◯ More than five concepts

Please list the concepts focused on during professional development in your school during the 2012-2013 and 2013-2014 school years.

What other professional development opportunities have you attended outside of your school district in the last three years?
*Please select all that apply.*

- ☐ District Agricultural Education In-Service
- ☐ State Agricultural Educators Conference
- ☐ Regional Agricultural Educators Conference
- ☐ National Agricultural Educators Conference
- ☐ AEA Conference
- ☐ Other School District Site Visit
- ☐ Other

For the following, please indicate the extent to which you agree with each statement within a traditional grading system and in a standards-based grading system.

| | Traditional Grading System | | | | | Standards-Based Grading System | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Not at All 1 | 2 | Somewhat 3 | 4 | To a Great Extent 5 | Not at All 1 | 2 | Somewhat 3 | 4 | To a Great Extent 5 |
| Grades should be used to make administrative decisions such as student's progress to the next course level, class rank, credits earned and so on. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be used to provide students and parents with feedback about student learning. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be used to provide students with guidance relative to courses they should take, occupations they should consider and so on. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be used to plan instruction. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be used to motivate students. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be based on academic achievement. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be based on student effort. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |
| Grades should be based on student behavior. | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

How do you define Standards-Based Grading?

Is Standards-Based Grading implemented in your school district?

- ○ No, it is not being used in my school district.
- ○ It is being discussed but has not been implemented.
- ○ Some teachers are piloting it.
- ○ It is fully implemented at a building level.
- ○ It is implemented throughout the entire district.

What building levels use Standards-Based Grading?

*Please select all levels that use SBG to some extent.*

- ☐ Elementary
- ☐ Middle School
- ☐ High School

Do you use Standards-Based Grading?

- ○ Yes
- ○ No

How was Standards-Based Grading implemented?

What successes have you had with Standards-Based Grading?

What frustrations have you had with Standards-Based Grading?

What support have you received from administrators in regards to Standards-Based Grading?

What support do you still need in regards to Standards-Based Grading?

What level of students do you teach?
*Please select all that apply.*

- ☐ Middle School
- ☐ High School

In the first column, select courses that you teach at the high school. In the second column, please identify if those courses are taught for college credit.

| | Courses Taught at HS for | |
|---|---|---|
| | High School Credit | College Credit |
| Agricultural Business | ☐ | ☐ |
| Agricultural Communications | ☐ | ☐ |
| Agricultural Mechanics | ☐ | ☐ |
| Agrimarketing | ☐ | ☐ |
| Agronomy | ☐ | ☐ |
| Animal Ecology | ☐ | ☐ |
| Animal Science | ☐ | ☐ |
| Horticulture | ☐ | ☐ |
| Introduction Agriculture | ☐ | ☐ |
| Landscape | ☐ | ☐ |
| Natural Resources | ☐ | ☐ |
| Soil Science | ☐ | ☐ |
| Wildlife | ☐ | ☐ |
| Other | ☐ | ☐ |

Do you teach any other courses outside of agricultural education?

- ○ Yes. Please identify what courses you teach outside of agricultural education.
- ○ No

How would you break down a typical school day? Identify the number of each period in a typical school day. The total number at the bottom would be the total periods in a day. *If your school is on a block system, please add the two days together.*

| | |
|---|---|
| Teaching Periods | 0 |
| Supervisory Periods (study hall, advisory, etc.) | 0 |
| Ag.Ed. supervisory periods (SAE) | 0 |
| Planning/Prep Periods | 0 |
| **Total** | 0 |

Do you hold any CASE certifications?

- ◯ Yes
- ◯ No

Please identify the CASE certifications that you have and the CASE courses that you taught during the 2013-2014 school year.

| | CASE | |
|---|---|---|
| | Certification Obtained | Course Taught in 2013-2014 |
| Introduction to Agriculture, Food, and Natural Resources | ☐ | ☐ |
| Principles of Agricultural Science - Animal | ☐ | ☐ |
| Principles of Agricultural Science - Plant | ☐ | ☐ |
| Natural Resources and Ecology | ☐ | ☐ |
| Animal and Plant Biotechnology | ☐ | ☐ |

On average, how many students are enrolled in an agricultural education course?

- ◯ Less than 10 student
- ◯ 10-15 students
- ◯ 16-20 students
- ◯ 21-25 students
- ◯ 26-30 students
- ◯ More than 30 students

How many students are enrolled at the 9-12 building level?

- ◯ Less than 50
- ◯ 50-100
- ◯ 101-150
- ◯ 151-200
- ◯ 201-300
- ◯ 301-400
- ◯ 401-600
- ◯ More than 600

How many teachers are there in the 9-12 building?

For each of the following, please identify how many administrators there are in your school.
*Only count each person once. For example, if a principal also serves as a curriculum director, only count them once as their predominant role.*

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Principal/Vice Principal | | | | | | |
| Guidance Counselor | | | | | | |
| Registrar | | | | | | |
| School Improvement Leader/At-Risk Coordinator | | | | | | |
| Curriculum Director | | | | | | |
| Dean of Students | | | | | | |
| Other | | | | | | |

How many years have you taught agricultural education?

- 1-3
- 4-9
- 10-15
- 16-20
- 21-25
- More than 25

What is your gender?

- Male
- Female

# APPENDIX B. IRB APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

**Date:** 2/7/2014

**To:** Jenny Lichty
220 Curtiss

**CC:** Dr. Michael Retallick
206 Curtiss Hall

**From:** Office for Responsible Research

**Title:** Agricultural Educator's Perceptions of Standards-Based Grading

**IRB ID:** 14-070

**Study Review Date:** 2/7/2014

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

  Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

  **Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form.** A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

# APPENDIX C. IRB APPLICATION

IRB ID: 14-070

RECEIVED
FEB 5 2014
By IRB

## INSTITUTIONAL REVIEW BOARD (IRB)
## Exempt Study Review Form

| |
|---|
| Title of Project: Agricultural Educators' Perceptions of Standards-Based Grading |

| | | |
|---|---|---|
| Principal Investigator (PI): **Jenny Lichty** | | Degrees: MS |
| University ID: **042206164** | Phone: 319-290-3636 | Email Address: jlichty@iastate.edu |
| Correspondence Address: 220 Curtiss | | |
| Department: AgEds | | College/Center/Institute: CALS |

PI Level: ☐ Tenured, Tenure-Eligible, & NTER Faculty ☐ Adjunct/Affiliate Faculty ☐ Collaborator Faculty ☐ Emeritus Faculty
☐ Visiting Faculty/Scientist ☐ Senior Lecturer/Clinician ☐ Lecturer/Clinician, w/Ph.D. or DVM ☐ P&S Employee, P37 & above
☐ Extension to Families/Youth Specialist ☐ Field Specialist III ☐ Postdoctoral Associate ☒ Graduate/Undergrad Student ☐ Other (specify: )

| | | |
|---|---|---|
| **FOR STUDENT PROJECTS** (*Required when the principal investigator is a student*) | | |
| Name of Major Professor/Supervising Faculty: Michael Retallick | | |
| University ID: 856922076 | Phone: 515-294-4810 | Email Address: msr@iastate.edu |
| Campus Address: 206 Curtiss | | Department: AgEdS |
| Type of Project: (check all that apply) ☒ Thesis/Dissertation | ☐ Class Project | ☐ Other (specify: ) |

| | |
|---|---|
| Alternate Contact Person: | Email Address: |
| Correspondence Address: | Phone: |

**ASSURANCE**

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies. Misrepresentation of the research described in this or any other IRB application may constitute non-compliance with federal regulations and/or academic misconduct.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects are protected. I will report any problems to the IRB. See Reporting Adverse Events and Unanticipated Problems for details.
- I agree that modifications to the approved project will not take place without prior review and approval by the IRB.
- I agree that the research will not take place without the receipt of permission from any cooperating institutions when applicable.
- I agree to obtain approval from other appropriate committees as needed for this project, such as the IACUC (if the research includes animals), the IBC (if the research involves biohazards), the Radiation Safety Committee (if the research involves x-rays or other radiation producing devices or procedures), etc., and to obtain background checks for staff when necessary.
- I understand that IRB approval of this project does not grant access to any facilities, materials, or data on which this research may depend. Such access must be granted by the unit with the relevant custodial authority.
- I agree that all activities will be performed in accordance with all applicable federal, state, local, and Iowa State University policies.

Signature of Principal Investigator Date

Signature of Major Professor/Supervising Faculty Date
(*Required when the principal investigator is a student*)

- I have reviewed this application and determined that departmental requirements are met, the investigator(s) has/have adequate resources to conduct the research, and the research design is scientifically sound and has scientific merit.

Printed Name of Department Chair/Head/Director

Signature of Department Chair/Head/Director Date

| | | | |
|---|---|---|---|
| **For IRB Use Only** | ☐ Not Research Per Federal Regulations | ☐ No Human Participants | Review Date: 2/7/2014 |
| | ☑ Minimal Risk | EXEMPT Per 45 CFR 46.101(b): 2 | |
| *IRB Reviewer's Signature* | | | |

Office for Responsible Research
Revised: 8/15/13

## Exempt Study Information

**Please provide *Yes* or *No* answers, except as specified. Incomplete forms will be returned without review.**

Part A: Key Personnel

**1. List all members and relevant qualifications of the project personnel and define their roles in the research.** Key personnel include the principal investigator, co-principal investigators, supervising faculty member, and any other individuals who will have contact with the participants or the participants' data (e.g., interviewers, transcribers, coders, etc.). This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project. For more information, please see Human Subjects – Persons Required to Obtain IRB Training.

| NAME | Interpersonal contact or communication with subjects, or access to private identifiable data? | Involved in the consent process? | Contact with human blood, specimens, or other biohazardous materials? | Other Roles in Research | Qualifications (i.e., special training, degrees, certifications, coursework, etc.) | Human Subjects Training Date |
|---|---|---|---|---|---|---|
| Jenny Lichty | ☒ | ☒ | ☐ | | | 02/03/2012 |
| Michael Retallick | ☒ | ☒ | ☐ | | | 03/14/2002 |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |
| | ☐ | ☐ | ☐ | | | |

**Please complete additional pages of key personnel as necessary.**

| | | |
|---|---|---|
| ☐ Yes ☒ No | 2. | **Does your study include children (persons under age 18) as research subjects?** |
| | | If ***Yes***, please read and respond to the following:<br><br>ISU policy requires that background checks be completed for all researchers and key personnel who will have any contact with children involved in this research project. Details regarding this policy can be found here. **Principal Investigators and faculty supervisors are responsible** for ensuring that background checks are completed BEFORE researchers or key personnel may have any contact with children. Records documenting completion of the background checks must be kept with other research records (e.g., signed informed consent documents, approved IRB applications, etc.) and may be requested during any audits or Post-Approval Monitoring of your study. |
| ☐ Agreed | 2.a. | **Please check here to indicate that you have read this information and agree that you will comply with these requirements.** |

## Part B: Funding Information and Conflicts of Interest

| | | |
|---|---|---|
| ☐ Yes ☒ No | 1. | **Is or will the project be externally funded?** |
| | | If ***No***, skip to question 8. |
| | | If ***Yes***, please identify the type(s) of source(s) from which the project is directly funded.<br><br>☐ Federal agency<br>☐ State/local government agency<br>☐ University or school<br>☐ Foundation<br>☐ Other non-profit institution<br>☐ For-profit business<br>☐ Other; specify: _____ |
| ☐ Yes ☐ No | 2. | **Is ISU considered to be the Lead or Prime awardee for this project?** |
| ☐ Yes ☐ No | 3. | **Are there or will there be any subcontracts issued to others for this project?** |
| ☐ Yes ☐ No | 4. | **Is or will this project be funded by a subcontract issued by another entity?** |
| ☐ Yes ☐ No | 5. | **If ISU is the recipient of the subcontract, does it involve any federal funding, such as federal flow-through funds?** |
| **6.** | | **If this project will be externally funded, please provide the complete name(s) of the funding source(s); please do not use acronyms.** If any subcontracts will be issued to others, please describe and include a list of all entities. |

| | |
|---|---|
| ☐ Attached | 7. Please attach a complete and final copy of the entire grant proposal or contract from which the project is or will be funded. |
| ☐ Yes ☒ No | 8. Do or will any of the investigators or key personnel listed on this application have a conflict of interest management plan in place with the Office of the Vice President for Research & Economic Development? |

## Part C: General Overview

**Please provide a brief summary of the purpose of your study:**

The purpose of this study is to determine the perceptions of high school agricultural educators in Iowa regarding current grading practices and standards-based grading. The objectives of this study are to: 1) Explain agricultural educators' current grading practices; 2) Define what agricultural educators know about Standards-Based Grading; 3) Determine the local driving force of the Standards-Based Grading movement; 4) Deteremine agricultural educators' attitudes towards Standards-Based Grading; 5) Identify current professional development activities and the need for future professional development activities.

**Please provide a brief summary of your research design:**

The study will consist of an electronic survey being distributed to all Iowa high school agricultural educators. Following Dillman's (2009) recommendations, participants will be contacted up to five times via email to be asked to complete the survey. The Qualtrics survey will require voluntary participation of agricultural educators with a variety of question types to be used. The survey will undergo face and content validity checks and should take less than 30 minutes for participants to complete. Data will be collected following Dillman's (2009) guidelines and will be analyzed using descriptive statistics.

## Part D: Exemption Categories

| | |
|---|---|
| ☒ Yes ☐ No | 1. Are you conducting research on Educational Practices (e.g., instructional techniques, curriculum effectiveness, etc.)? If *Yes*, please answer questions 1a through 1e. If *No*, please proceed to question 2. |
| ☒ Yes ☐ No | 1.a. Will the research be conducted in an established or commonly accepted educational setting, such as a classroom, school, professional development seminar, etc.? |
| ☐ Yes ☒ No | 1.b. Will the research be conducted in any settings that would **not** generally be considered to be established or commonly accepted educational settings? If *Yes*, |

please specify: _____

☒ Yes ☐ No **1.c.** Will the research procedures and activities involve normal educational practices (e.g., activities that normally occur in the educational setting)? Examples include research on regular or special education instructional strategies or the effectiveness of instructional techniques, curricula, or classroom management methods.

☐ Yes ☒ No **1.d.** Will the research procedures include anything **other than** normal educational practices? If *Yes*, please specify: _____

☐ Yes ☒ No **1.e.** Will the procedures include randomization into different treatments or conditions, radically new instructional strategies, or deception of subjects? If *Yes*, please specify: _____

☒ **Yes** ☐ **No** **2. Does your research involve use of educational tests, survey procedures, interview procedures, or observations of public behavior? If *Yes*, please answer questions 2.a. through 2.b. If *No*, please proceed to question 3.**

☒ Yes ☐ No **2.a.** Will the research involve one or more of the following? (Check all that apply.)

- ☐ The use of educational tests (cognitive, diagnostic, aptitude, achievement)
- ☒ Surveying or interviewing adults
- ☐ Observations of public behavior* of adults
- ☐ Observations of public behavior* of children, when the researcher will not interact or intervene with the children

*Note: Activities occurring in the workplace and school classrooms are not generally considered to involve public behavior.

☐ Yes ☒ No **2.b.** Are **all** of the participants elected or appointed public officials or candidates for public office?

☐ **Yes** ☒ **No** **3. Does the research involve the collection or study of *currently existing* data, documents, records, pathological specimens, or diagnostic specimens? If *Yes*, please answer questions 3.a. through 3.b. If *No*, please proceed to question 4.**

☐ Yes ☐ No **3.a.** Are **all** of the data, documents, records, or specimens **publicly** available?

☐ Yes ☐ No **3.b.** Will the data you record for your study include ID codes? If *Yes*, please answer 3.b.(1) and 3.b.(2).

☐ Yes ☐ No **3.b.(1).** Does a "key" exist linking the ID codes to the identities of the individuals to whom the data pertains?

☐Yes ☐No **3.b.(2).** Will any persons on the research team have access to this key?

☐**Yes** ☒**No** **4. Does your research involve Taste and Food Quality tests and Consumer Acceptance Studies involving food? If *Yes*, please answer questions 4.a. through 4.c. If *No*, please proceed to question 5.**

☐ Yes ☐ No **4.a.** Is the food to be consumed normally considered wholesome, such as one would find in a typical grocery store?

☐ Yes ☐ No **4.b.** If the food contains additives, are the additives at or below the level normally considered to be safe by the FDA, EPA, or Food Safety and Inspection Service of USDA? Consider additives in commercially available foods found at a grocery store and/or any additives that are added to food for research purposes.

☐Yes ☐No **4.c.** If there are agricultural chemicals or environmental contaminants in the food, are they at or below the level found to be safe by the FDA, EPA, or Food Safety and Inspection Service of USDA?

☐**Yes** ☒**No** **5. Is your study a research or demonstration project to examine**

- **Federal** public benefit or service programs such as Medicaid, unemployment, social security, etc.; or
- Procedures for obtaining benefits or service under these programs; or
- Possible changes in or alternatives to those programs or procedures; or
- Possible changes in methods or levels of payment for benefits or services under these programs?

☐ Yes ☐ No **5.a.** If *Yes*, is the research or demonstration project pursuant to specific federal statutory authority?

## Part E: Additional Information

☐**Yes** ☒**No** **6. Does your research involve any procedures that do not fit into one or more of the categories in items #1–#5 listed above, such as the following? (Check all that apply.)**

- ☐ Usability testing of websites, software, devices, etc.
- ☐ Collection of information from private records when identifiers are recorded
- ☐ Procedures conducted to induce stress, moods, or other psychological or physiological reactions
- ☐ Presentation of materials typically considered to be offensive, threatening, or degrading
- ☐ Video recording or photographing non-public behaviors
- ☐ Use of deception (e.g., misleading participants about the procedures or purpose of the study)
- ☐ Physical interventions, such as

- ☐ blood draws
- ☐ new collection of biological specimens
- ☐ use of physical sensors (ECG, EKG, EEG, ultrasound, etc.)
- ☐ exercise, muscular strength assessment, flexibility testing
- ☐ body composition assessment
- ☐ measuring of height and weight
- ☐ x-rays
- ☐ changes in diet or exercise
- ☐ Tests of sensory acuity (i.e., vision or hearing tests, olfactory tests, etc.)
- ☐ Consumption of food (other than as described in #4) or dietary supplements
- ☐ Clinical studies of drugs or medical devices
- ☐ Other; please specify: _____

☐ Yes ☐ No **6.a.** If *Yes*, is your research conducted in an established educational setting, and are the checked procedures part of normal educational practices given that setting? If *Yes*, please describe:

_____

☐ Yes ☒ No **7. Do you intend or is it likely that your study will include any persons from the following populations? (Check all that apply.)**

- ☐ Prisoners
- ☐ Cognitively impaired
- ☐ Children (persons under age 18)
- ☐ Wards of the State
- ☐ Persons who are institutionalized

**7.a.** If *Yes*, please describe how they will be involved and what procedures they will complete:

_____

☒ Yes ☐ No **8. Will any of the following identifiers be *linked to the data* at any time point during the research? (Check all that apply.)**

- ☐ Names: ☐ First Name Only ☐ Last Name Only ☒ First and Last Name
- ☐ Phone/fax numbers
- ☐ ID codes that can be linked to the identity of the participant (e.g., student IDs, medical record numbers, account numbers, study-specific codes, etc.)
- ☒ Addresses (email or physical)
- ☐ Social security numbers
- ☐ Exact dates of birth
- ☐ IP addresses
- ☐ Photographs or video recordings
- ☐ Other; please specify: _____

☐ Yes ☒ No **9. Is there a reasonable possibility that participants' identities could be ascertained from any combination of information in the data? If *Yes*, please describe:** _____

☒ Yes ☐ No **10. Will participants' identities be kept confidential when results of the research are disseminated?**

☐ Yes ☒ No **11. Could any of the information collected, if disclosed outside of the research, reasonably place**

**the subjects at risk of any of the following? (Check all that apply.)**

- ☐ Criminal liability
- ☐ Civil liability
- ☐ Damage to the subjects' financial standing
- ☐ Damage to the subjects' employability
- ☐ Damage to the subjects' reputation

☐ Yes ☒ No **12. Does the research, directly or indirectly, involve or result in the collection of any information regarding any of the following? (Check all that apply.)**

- ☐ Use of illicit drugs
- ☐ Criminal activity
- ☐ Child, spousal, or familiar abuse
- ☐ Mental illness
- ☐ Episodes of clinical depression
- ☐ Suicidal thoughts or suicide attempts
- ☐ Health history
- ☐ History of job losses
- ☐ Exact household income other than in general ranges
- ☐ Negative opinions about one's supervisor, workplace, teacher, or others to whom the subject is in a subordinate position
- ☐ Opinions about race, gender, sexual orientation, or any other socially sensitive or controversial topics
- ☐ Sexual preferences or behaviors
- ☐ Religious beliefs
- ☐ Any other information that is generally considered to be private or sensitive given the setting of your research; if so, please specify: _____

**After completion of Parts A, B, and C of this application, please send the completed form to:**

**Institutional Review Board (IRB)**
**Office for Responsible Research**
**1138 Pearson Hall**
**Ames, IA 50011-2200**

*Data collection materials (e.g., survey instruments, interview questions, recruitment and consent documents, etc.) do not need to be submitted with this application.*

**If you have any questions or feedback, please contact the IRB office at IRB@iastate.edu or 515-294-4566.**

## APPENDIX C. CONTACT LETTERS
### Pre-notice Letter

[NAME],

On Tuesday, February 25, you will receive an email with a survey link requesting you to fill out a questionnaire regarding your current grading practices and perceptions of Standards-Based Grading in high school agricultural education classes. As the agricultural educator contact in your school district, your input is valuable. Participation is estimated to take approximately 20 minutes.

Thank you for the time to briefly inform you about this study. The success of our research depends greatly on your participation.

Sincerely,

Jenny Lichty
Graduate Student

Michael Retallick
Associate Professor

If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, 515-294-4566, IRB@iastate.edu, or Director, 515-294-3115, Office of Responsible Research, Iowa State University, Ames, Iowa 50011.

**First Questionnaire Letter and Link**

[NAME],

The purpose of this email is to ask for your help in a Master's of Science degree study about current grading practices and perceptions of Standards-Based Grading in high school agricultural education programs.

As a high school agricultural educator, you are invited to participate in this study. Results of this study will provide valuable information about the current grading practices of high school agricultural educators and their knowledge of Standards-Based Grading.

Your responses will remain anonymous and confidential. After you submit your completed questionnaire, your name will be deleted from the mailing list, and never connected to your responses in any way. Your participation is completely voluntary. If at any time you wish to decline from participating, you may, and your information will not be evaluated. However, we hope you decide to participate by taking a few minutes to complete the questionnaire.

**Follow this link to the Survey:**
[LINK]

Or copy and paste the URL below into your internet browser:
[LINK URL]

Please follow the instructions for each section as you complete the questionnaire. Your participation should take approximately 20 minutes. By submitting a completed questionnaire you are giving consent to participate.

If you have any questions, concerns, or comments about this study, I would be glad to talk with you. I can be reached via email at jlichty@iastate.edu. Thank you for your time and consideration.

Sincerely,

Jenny Lichty
Graduate Student

Michael Retallick
Associate Professor

If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, 515-294-4566, IRB@iastate.edu, or Director, 515-294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

**First Reminder Letter**

[NAME],

Recently, you were sent a questionnaire about grading practices and perceptions of Standards-Based Grading. In an effort to analyze current grading practices, you participation is important.

**To complete the questionnaire, follow this link to the Survey:**
[LINK]

Or copy and paste the URL below into your internet browser:
[LINK URL]

Please follow instructions for each section as you complete the questionnaire. Your participation should take approximately 20 minutes.

Your responses will remain anonymous and confidential. After you submit your complete questionnaire, your name will be deleted from the mailing list, and never connected to your responses in any way. Your participation is completely voluntary. If at any time you wish to decline from participating, you may, and your information will not be evaluated. However we hope you decide to participate by taking a few minutes to complete the questionnaire.

Please contact us with any questions. My email is jlichty@iastate.edu. Again, thank you for your time and consideration.

Sincerely,

Jenny Lichty
Graduate Student

Michael Retallick
Associate Professor

If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, 515-294-4566, IRB@iastate.edu, or Director, 515-294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

**Second Reminder Letter**

[NAME],

About a week ago, I sent you an email with a survey link about grading practices.To the best of my knowledge, your responses have not been received. I am writing again to stress the importance of receiving your input. Your participation in this study is very important to us.

Your responses will remain anonymous and confidential. After you submit your completed questionnaire your name will be deleted from the mailing list and never connected to your responses in any way. Your participation should take approximately 20 minutes and is completely voluntary.

**Follow this link to the Survey:**
[LINK]

Or copy and paste the URL below into your internet browser:
[LINK URL]

I hope that you will complete and submit the questionnaire by the deadline of Friday, March 7. Please contact us with any questions. My email is jlichty@iastate.edu. Again, thank you for your time and consideration.

Sincerely,

| | |
|---|---|
| Jenny Lichty | Michael Retallick |
| Graduate Student | Associate Professor |

If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, 515-294-4566, IRB@iastate.edu, or Director, 515-294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

**Final Contact Letter**

[NAME],

Over the last two weeks, I have sent several emails about an important research study on agricultural educators' grading practices and perceptions. The purpose of this study is to determine agricultural educators' perceptions of current grading practices and Standards-Based Grading.

The study is nearly a close, and this is the last chance for you to complete the questionnaire.

**Follow this link to the Survey to participate:**
[LINK]

Or copy and paste the URL below into your internet browser:
[LINK URL]

Follow the link to opt out of future emails:
[OPT OUT LINK]

Your participation in this study is very important to us and your responses will help with the success of this research study. Please consider completing the questionnaire at the link provided. Your participation should take approximately 20 minutes and all responses will be anonymous and confidential[1]. Your assistance is greatly appreciated.

I hope that you will complete and submit the questionnaire by the deadline of **Friday, March 7**. Please contact us with any questions. My email is jlichty@iastate.edu. Again, thank you for your time and consideration.

Sincerely,

| | |
|---|---|
| Jenny Lichty | Michael Retallick |
| Graduate Student | Associate Professor |

[1]After you submit your completed questionnaire, your name will be deleted from the mailing list and never connected to you responses in any way. If at any time you wish to decline from participating, you may, and your information will not be evaluated.

If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, 515-294-4566, IRB@iastate.edu, or Director, 515-294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

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